MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

June 28, 2022

Meg McCollister
Regional Administrator
U.S. EPA, Region VII
11201 Renner Boulevard
Lenexa, KS 66219

Re: 2022 Annual Ongoing Data Requirements Report for SO_2

Dear Meg McCollister:

The Missouri Department of Natural Resources' Air Pollution Control Program (air program) is submitting the state's stand-alone annual ongoing data requirements rule (DRR) report pursuant to the federal data requirements rule for the 2010 sulfur dioxide (SO_2) standard. The annual ongoing DRR report is due to the U.S. Environmental Protection Agency (EPA) on July 1, 2022, to meet the reporting requirements in 40 CFR 51.1205 (b).

The 2022 report addresses five areas where modeling of actual SO_2 emissions served as the basis for designating the areas as attainment/unclassifiable in EPA's Federal Register notice on January 9, 2018. The air program recommends that no additional modeling is needed for all five attainment/unclassifiable areas based on the technical analysis in the attached report.

This year's report also includes a modeling analysis pursuant to 40 CFR 51.1205 (b)(2). The analysis supports a request to remove the area surrounding the Montrose facility from future ongoing DRR reports. The modeling analysis is provided in Appendix A of the report, and follows the EPA's August 2016 Draft *SO_2 NAAQS Designations Modeling Technical Assistance Document*. The modeling results show that all receptors in the analysis are below 50 percent of the level of the 2010 SO_2 standard. Upon EPA approval, the air program will no longer include the area surrounding the Montrose facility in future ongoing DRR reports.

As required in 40 CFR 51.1205, the air program is making this final stand-alone report available for public inspection and review on our website. The air program also accepted comments on a draft of the report from May 10, 2022 to June 10, 2022. The air program received one comment from Mississippi Lime and corrected an error regarding a facility name in Appendix A based on that comment.

Thank you for your attention to this matter. If you have any questions regarding the report, please contact Mark Leath, with the Department's Air Pollution Control Program at P.O. Box 176, Jefferson City, MO 65102 or by phone at (573) 526-5503 or email at mark.leath@dnr.mo.gov.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Stephen M. Hall
Director

SMH: vjc

Enclosures:
2022 Annual Ongoing Data Requirements Report
Appendix A - Evergy Montrose Modeling Report 2018-2020

c: Ashley Keas – U.S. EPA, Region VII
File# 2022-SO2-DRR-l

2022 Annual Ongoing Data Requirements Report

Data Requirements Rule for the 2010 Sulfur Dioxide Standard

Submittal Due Date
July 1, 2022

Missouri Department of Natural Resources
Division of Environmental Quality
Air Pollution Control Program
P.O. Box 176
1659 East Elm Street
Jefferson City, Missouri 65102
Telephone 573-751-4817

File# 2022-SO2-DRR-1

Purpose and Background

The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) has prepared this report as the state's stand-alone annual ongoing data requirements report for the 2010 1-hour sulfur dioxide (SO_2) primary national ambient air quality standard (2010 SO_2 Standard). This report is intended to fulfill the annual reporting requirements of the federal SO_2 data requirements rule (DRR), 40 CFR Part 51 Subpart BB, "*Data Requirements Rule for Characterizing Air Quality for the Primary SO_2 NAAQS*". According to the rule, the Air Program must submit the annual ongoing data requirements report to the U.S. Environmental Protection Agency (EPA) on July 1 each year to meet the reporting requirements in 40 CFR 51.1205 (b):

> "*(b) Modeled areas. For any area where modeling of actual SO_2 emissions serve as the basis for designating such area as attainment for the 2010 SO_2 NAAQS, the air agency shall submit an annual report to the EPA Regional Administrator by July 1 of each year, either as a stand-alone document made available for public inspection, or as an appendix to its Annual Monitoring Network Plan (also due on July 1 each year under 40 CFR 58.10), that documents the annual SO_2 emissions of each applicable source in each such area and provides an assessment of the cause of any emissions increase from the previous year. The first report for each such area is due by July 1 of the calendar year after the effective date of the area's initial designation.*
>
> *(1) The air agency shall include in such report a recommendation regarding whether additional modeling is needed to characterize air quality in any area to determine whether the area meets or does not meet the 2010 SO_2 NAAQS. The EPA Regional Administrator will consider the emissions report and air agency recommendation, and may require that the air agency conduct updated air quality modeling for the area and submit it to the EPA within 12 months*."

Missouri currently includes five areas that are subject to the ongoing reporting requirements for modeled areas under the DRR. On January 9, 2018, EPA designated Jasper, Henry, Greene and Randolph Counties, as well as a portion of St. Louis County as attainment/unclassifiable for the 2010 SO_2 standard.[1] These designations were based on modeling analyses the Air Program performed utilizing actual SO_2 emissions, meaning they are subject the reporting requirements in 40 CFR 51.1205 (b).

The Air Program submitted the first annual report pursuant to 40 CFR 51.1205(b) in 2017. The first two reports the Air Program submitted included only one area (Scott County), and the other five areas had not yet been designated. The reports submitted in 2019-2021 have all included six areas in Missouri. In the report submitted in 2021, the Air Program included a dispersion modeling analysis showing that all receptors around the Sikeston facility had modeled design values below 50 percent of the level of the 2010 SO_2 standard, and requested to remove Sikeston from future reporting requirements pursuant to 40 CFR 51.1205(b)(2). On April 25, 2022, EPA approved the Air Program's request to remove the area surrounding the Sikeston facility (Scott County) from future ongoing reporting requirements under the DRR for modeled areas. Therefore, this 2022 report is the first annual report that does not include an assessment of the Sikeston facility.

[1] 83 FR 1098, January 9, 2018

Updated Modeling Analysis for the Montrose Power Station

As part of this annual report, the Air Program is also providing an updated modeling analysis for the area surrounding the Montrose Power Station. This modeling analysis is detailed in Appendix 1 to this report. The modeling shows that the maximum modeled 3-year SO_2 design values surrounding this facility are below 50 percent of the level of the 2010 SO_2 standard. The modeling was conducted using 2018-2020 emissions data. Per 40 CFR 51.1205(b)(2),

> *(2) An air agency will no longer be subject to the requirements of this paragraph (b) for a particular area if it provides air quality modeling demonstrating that air quality values at all receptors in the analysis are no greater than 50 percent of the 1-hour SO_2 NAAQS, and such demonstration is approved by the EPA Regional Administrator.*

2021 Annual Emissions

Per 40 CFR 51.1205 (b), the Air Program is required to document the annual SO_2 emissions of all modeled DRR sources. Table 1 lists the five modeled DRR sources in Missouri and details their respective annual actual SO_2 emissions in 2021. The Air Program acquired emission data from EPA's Clean Air Markets Division (CAMD) database, which is based on Continuous Emissions Monitoring System (CEMS) data measured in compliance with 40 CFR Part 75.

Table 1 – 2021Actual Annual SO_2 Emissions for Missouri's Modeled DRR Sources

DRR Facility Name	County Name	DRR Facility FIPs	2021 SO_2 Emissions (tons)
Meramec	St. Louis	(189-0010)	1,539
Asbury	Jasper	(097-0001)	0
Montrose	Henry	(083-0001)	0
John Twitty City Utilities	Greene	(077-0039)	2,498
Thomas Hill	Randolph	(175-0001)	16,193

Comparison of 2021 Emissions to Previous Year

Per 40 CFR 51.1205 (b), the Air Program is required to provide an assessment of the cause of any emissions increase from the previous year for all modeled DRR sources. Table 2 provides the 2020 and 2021 actual annual SO_2 emissions for the five modeled DRR sources along with the difference in annual emissions between the two years. As seen in the table, emissions increased from 2020 to 2021 at three of the five sources. These three facilities include Meramec (facility FIPS189-0010), John Twitty City Utilities (facility FIPS 077-0039), and Thomas Hill Energy Center (facility FIPS 175-0001). These increases are highlighted in the last column of Table 2. The other two facilities are retired and neither facility had any emissions in 2020 or 2021.

Table 2 – 2020 and 2021 Emissions Comparison for Missouri's Modeled DRR Sources

DRR Facility Name	2020 SO_2 Emissions (tons)	2021 SO_2 Emissions (tons)	2020-2021 Comparison*
Meramec	284	1,539	1,255
Asbury	0	0	0
Montrose	0	0	0
John Twitty City Utilities	1,967	2,498	531
Thomas Hill	13,702	16,193	2,491

*A positive value in the last column indicates an increase in emissions from 2020 to 2021; a negative value indicates a decrease in emissions from 2020 to 2021.

Assessment of Annual Emission Increases from 2020 to 2021

As stated above, the Air Program must provide an assessment of the cause of any emissions increase from the previous year for the modeled DRR sources. As shown in Table 2 above, annual SO_2 emissions increased at the Meramec, John Twitty City Utilities, and Thomas Hill facilities from 2020 to 2021. To provide this required assessment, the Air Program evaluated the cause of the annual emissions increases at these three facilities.

These three facilities are coal-fired power plants that provide electricity to the grid for sale to their customers. Year-to-year emission fluctuations at these types of facilities are common due to utilization rates as power generators operate to follow electricity demand, which varies every year. Additionally, in some years, units come down for weeks or months for routine maintenance, which can also add variability to the emissions in any given year. To determine whether this year-to-year variability in electricity production at these three facilities was the cause of the emissions increases, the Air Program obtained the annual operating hours and gross load produced by the units at these facilities in 2020 and 2021 from EPA's CAMD database. Table 3 provides this information for each unit at these three facilities along with the facility totals for these figures. The following sections provide the Air Program's assessment of the cause of the emissions increases at these three facilities from 2020 to 2021.

Table 3 - Operating Hours/Gross Load for 2020-2021 John Twitty City Utilities, Meramec, and Thomas Hill

Facility Name	Year	Unit ID	Operating Time (hours)	Operating Time (facility combined – hours)	Gross Load (MW-h)	Gross Load (facility combined – MW-h)
John Twitty City Utilities	2020	1	3,977	9,724	574,294	1,757,188
		2	5,747		1,182,894	
	2021	1	5,394	12,898	810,314	2,678,573
		2	7,504		1,868,258	
Meramec	2020	1	537	1,053	13,255	25,532
		2	516		12,277	
		3 *	215	898	18,897	109,289
		4 *	683		90,392	
	2021	1	905	1,722	25,749	46,314
		2	817		20,565	
		3 *	1,338	3,743	185,840	582,950
		4 *	2,405		397,110	
Thomas Hill	2020	1	7,726	21,793	1,171,709	7,264,493
		2	7,877		1,982,358	
		3	6,190		4,110,426	
	2021	1	8,126	23,586	1,299,156	8,957,897
		2	7,188		1,874,299	
		3	8,272		5,784,442	

* For the Meramec facility the facility combined operating hours and gross load (columns 4 and 6) combine these values for units 1 and 2 in the first rows and combine units 3 and 4 in the second rows since units 1 and 2 operate on natural gas while units 3 and 4 operate on coal.

John Twitty City Utilities – Assessment of 2020 to 2021 Annual Emissions Increase

From 2020 to 2021, the actual annual SO_2 emissions from this facility increased by 27 percent. This corresponds to an increase of 531 tons of SO_2 emissions between these two years. As seen in Table 3, the operating time and gross load at the facility increased by 33 percent and 52 percent, respectively, between these two years. Based on this information, the year-to-year variability in electricity production at the facility (increases in operating time and generation) is the cause of the annual SO_2 emissions increase from 2020 to 2021.

Meramec – Assessment of 2020 to 2021 Annual Emissions Increase

From 2020 to 2021, the actual annual SO_2 emissions from this facility increased by 442 percent. This corresponds to an increase of 1,255 tons of SO_2 emissions between these two years. Since units 3 and 4 run on coal, and units 1 and 2 run on natural gas, the Air Program focused the assessment on the operational changes at units 3 and 4 between 2020 and 2021. The combined operating hours and gross load from units 3 and 4 increased by 317 percent and 433 percent, respectively, between these two years. Based on this information, the year-to-year variability in electricity production at the facility (increases in operating time and generation from the coal-fired units 3 and 4) is the cause of the annual SO_2 emissions increase from 2020 to 2021.

Thomas Hill – Assessment of 2020 to 2021 Annual Emissions Increase

From 2020 to 2021, the actual annual SO_2 emissions from this facility increased by 18 percent. This corresponds to an increase of 2,491 tons of SO_2 emissions between the two years. As seen in Table 3, the facility combined annual operating hours and gross load increased by 8 percent and 23 percent, respectively, between these two years. Based on this information, the year-to-year variability in electricity production at the facility (increases in operating time and generation) is the cause of the annual SO_2 emissions increase from 2020 to 2021.

Recommendations Regarding Updated Modeling

In addition to the assessment of the annual SO_2 emissions fluctuations for each modeled DRR source, 40 CFR 51.1205 (b)(1) requires the Air Program to provide a recommendation in this annual report as to whether updated modeling is needed to characterize air quality in the areas surrounding all modeled DRR sources to determine whether the areas continue to meet the 2010 SO_2 standard. Based on the information and assessment set forth below, the Air Program recommends no updated dispersion modeling analysis is needed for any of Missouri's modeled DRR sources. However, as discussed previously in this report, the Air Program has conducted and is submitting updated dispersion modeling for the Montrose facility to demonstrate that the facility meets the requirements for an exemption from future ongoing DRR reports.

In determining the appropriate recommendation regarding the need for any updated dispersion modeling analysis, the appropriate assessment should compare emission characteristics in the most recent year with the emission characteristics that were modeled for the DRR sources to inform their initial attainment designations. Factors for consideration in such a comparison may include total annual emissions, the level of the modeled design value from the initial modeling analysis, other relevant facility-specific information, and where appropriate, hourly emission profiles or daily maximum 1-hour emission rates.

The Air Program's assessment to determine the appropriate recommendation regarding the need for updated modeling first evaluates the average annual emission totals that were modeled for the five DRR sources. The Air Program then compared these values against the actual annual emissions from 2021 for the same sources. In the modeling used to inform the initial designations, the modeled emissions from Missouri's five modeled DRR sources demonstrated compliance with the 2010 SO_2 standard. Therefore, if actual emissions in the most recent year are lower than the modeled emissions, it is reasonable to assume any updated modeling analysis utilizing the lower emission levels from the more recent year would also demonstrate compliance with the standard.

Table 4 shows the average annual modeled emissions, the modeled design values, and the modeled emission years used to inform the initial attainment designations for the five modeled DRR sources. The table also provides the 2021 actual emissions for these five facilities and a comparison of the 2021 emissions to the average annual modeled emissions. For all five of Missouri's modeled DRR sources, the 2021 actual emissions are less than the average annual modeled emissions used to inform the initial attainment designation (either 2012-2014 or 2013-2015, as applicable). Therefore, any additional modeling for the five sources where emissions in 2021 were less than the modeled emissions would likely result in lower maximum-modeled design values than those listed in Table 4. This supports a recommendation for no updated modeling at these five sources.

Table 4 – Modeled Design Values and Comparison of Modeled Emissions to 2021 Actual Emissions for Missouri's Modeled DRR Sources

DRR Facility Name	Maximum Modeled Design Value (ppb)	Years of Modeled Emissions Data	Average Annual Modeled SO_2 Emissions (tons)	2021 Actual SO_2 Emissions (tons)	Comparison - Modeled Emissions vs. 2020 Emissions (tons)*
Meramec	52.98^	2013-2015^	5,541^	1,539	-4,002
Asbury	67.5	2012-2014	6,695	0	-6,695
Montrose	49.1	2013-2015	7,203	0	-7,203
City Utilities John Twitty	42.9	2013-2015	2,759	2,498	-261
Thomas Hill	52.1	2013-2015	16,582	16,193	-389

* A positive value in the last column indicates the 2020 emissions were higher than the average annual modeled emissions; a negative value indicates 2020 emissions were lower than the average annual modeled emissions.
^ The 2013-2015 average annual modeled emissions at Meramec in this table only include the average actual emissions from Units 3 and 4 during these three years. The 2013-2015 modeling performed for designations for the Meramec facility utilized 2013-2015 actual emissions from Units 3 and 4 and natural gas combustion in Units 1 and 2. An enforceable permit condition required exclusive use of natural gas in Units 1 and 2, effective starting in 2016.

The following discussions include facility-specific details considered in developing the Air Program's recommendations regarding the need for additional modeling for all five of Missouri's modeled DRR sources.

Asbury, Jasper County - FIPS (097-0001)

This facility had no SO_2 emissions in 2021. The facility officially retired on March 31, 2020. Therefore, no SO_2 emissions are expected from this facility going forward. The Air Program recommends no additional modeling for the area surrounding the Asbury facility.

Montrose, Henry County - FIPS 083-0001

This facility had no SO_2 emissions in 2021. All three units at the facility are now retired. Unit 1 retired in April 2016, while Units 2 and 3 retired in December 2018. Going forward, no SO_2 emissions are expected from this facility. Therefore, any updated modeling for the area surrounding the Montrose facility would almost certainly demonstrate continued attainment with the standard.

As seen in Table 4, the maximum modeled design value using 2013-2015 emissions was 49.1 ppb. This is well below the 2010 SO_2 standard of 75 ppb (65.4 percent), and these were the modeling results when the facility had annual average SO_2 emissions over 7,000 tons. Therefore, in an effort to streamline future reporting obligations, , the department has conducted additional modeling to support a formal request to remove this site from the list of sources subject to the annual ongoing reporting requirements. This additional modeling information is included in Appendix A for this report. In the updated modeling analysis utilizing 2018-2020 emissions and meteorology, the maximum modeled SO_2 design value is 8.33 ppb, which represents 11.1 percent of the 2010 SO_2 standard. Based on this information, the Air Program requests that EPA approve the updated modeling demonstration and grant an exemption for Montrose from the annual ongoing reporting requirements in 40 CFR 51.1205(b) going forward.

Meramec, St. Louis County - FIPS 189-0010

For this facility, annual SO_2 emissions in 2021 were 4,002 tons/year less than the average annual modeled emissions from 2013-2015. This is a decrease of 72 percent between current actual emissions and the emissions the Air Program modeled to inform the original attainment designation. Even though the emissions were higher in 2021 than in 2020, they were still well below the emissions used to create the modeling analysis for the original attainment designation. Therefore, any updated modeling would be expected to result in even lower modeled SO_2 concentrations that would also demonstrate continued attainment in the area surrounding this source. Therefore, the Air Program recommends no additional modeling for the area surrounding the Meramec facility.

City Utilities John Twitty, Greene County - FIPS 077-0039

For this facility, the annual SO_2 emissions in 2021 were 261 tons/year less than the average annual modeled emissions from 2013-2015. This is 10 percent lower than the average annual modeled emissions used to inform the original attainment designation. Even though the emissions were higher in 2021 than in 2020, they were still below the emissions used to create the modeling analysis for the original attainment designation. Therefore, any updated modeling would be expected to demonstrate continued attainment in the area surrounding this source. Therefore, the Air Program recommends no additional modeling for the area surrounding the John Twitty facility.

Thomas Hill, Randolph County - FIPS 175 0001

For this facility, annual SO_2 emissions in 2021 were 389 tons/year less than the average annual modeled emissions from 2013-2015. This is a decrease of 2 percent between current actual emissions and the emissions the Air Program modeled to inform the original attainment designation. Therefore, any additional modeling is expected to similarly demonstrate continued attainment in the area surrounding this source. The Air Program recommends no additional modeling for the area surrounding the Thomas Hill facility.

Public Inspection and Review

As required in 40 CFR 51.1205, the Air Program will make the final stand-alone report available for public inspection and review on our public website. The final report will also be available for review at the Missouri Department of Natural Resources, Air Pollution Control Program, 1659 Elm St., Jefferson City, (573) 751-4817.

The Air Program is also making the proposed version of the report available for public review and comment prior to finalizing it, specifically –

- Notice of the availability of the proposed stand-alone ongoing data requirements report was posted on the program website by May 9, 2022.
- The Air Program will open a 30-day public comment period for the proposed report on May 10, 2022 after posting it on the website. The public comment period will close on June 10, 2022.
- After posting the proposed report, the Air Program will send an email announcement to notify the public of the availability of the report and the corresponding public inspection and comment period. Email recipients will include all individuals who have signed up to receive email updates for Air Program public notices.

Conclusion

This report fulfills the Air Program's obligation to submit an annual ongoing data requirements report for Missouri's modeled DRR sources. The report includes an evaluation of the most current year of emissions data at the modeled sources, an assessment of the cause of any SO_2 emission increases at these sources from the previous year, and the Air Program's recommendations regarding the need for additional modeling to evaluate the continued attainment status for the areas surrounding these sources. The Air Program recommends that no additional modeling is needed for any of the modeled DDR sources. However, the Air Program has conducted an updated modeling analysis for the Montrose facility to justify a request to remove it from the list of areas required for inclusion in future iterations of this report.

The updated modeling analysis is provided in Appendix A to this report. The analysis shows that all receptors in the area surrounding the facility have modeled design values below 50 percent of the 2010 SO_2 standard of 75 parts per billion. Following EPA approval, this analysis satisfies the requirements in 40 CFR 51.1205 (b)(2), to exempt Montrose from future ongoing reports. The highest modeled 3-year design value from 2018-2020 for any receptor in the analysis is 8.33 ppb, which is 11.1 percent of the standard. Based on this modeling analysis, the Air Program requests EPA to approve Montrose for this exemption. Following EPA approval of this request, the Montrose facility will no longer be included in future annual ongoing data requirements reports.

Purpose

The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) is submitting this modeling analysis to the United States Environmental Protection Agency (EPA) for Montrose pursuant to 40 CFR 51.1205 (b)(2). According to 40 CFR 51.1205 (b)(2), the Air Program will no longer be subjected to the requirements of paragraph (b) for Montrose if it provides air quality modeling demonstrating that the air quality values at all receptors in the modeling analysis are no greater than 50 percent of the 2010 SO_2 standard. In this modeling analysis, the Air Program demonstrates that all the receptors around Montrose are below 50 percent of the level of the 2010 SO_2 standard. Based on the modeling analysis contained in this report, the highest modeled 3-year design value from 2018-2020 for any receptor in the analysis is 8.33 parts per billion (ppb). In current days the facility is no longer running therefore, the Air Program requests EPA approval to remove Montrose from the requirement to be included in future ongoing attainment verification reports required by 40 CFR 51.1205(b).

Background

On June 22, 2010, EPA established a new 1-hour SO_2 standard of 75 parts per billion (ppb) or 196.5 micrograms per cubic meter (µg/m3). Following the promulgation of any new or revised National Ambient Air Quality Standard (NAAQS), EPA designates all areas in the country. The designation options are attainment (areas meeting the standard), nonattainment (areas not meeting the standard or nearby and contributing to an area not meeting the standard), or unclassifiable (areas where EPA is unable to determine whether the area is meeting or not meeting the standard).

Under the 2010 SO_2 standard, EPA's boundary designations process included four separate rounds. The third designation round focused on areas that contain either a violating monitor or a stationary source that, according to the EPA's Clean Air Market Database, emitted at least 2,000 tons of SO_2 in 2012 and that had not been designated in rounds 1 or 2.

The area around the Montrose facility was designated attainment/unclassifiable in round three based on modeling of actual emission levels.[1] The designation was effective on April 9, 2018. At the time of the designation, Montrose was owned and operated by Kansas City Power and Light (KCP&L). However, KCP&L and Westar Energy have since merged to form Evergy Inc., which is now the owner of the Montrose facility. At the time of designation, the Montrose facility had three coal-fired boilers. In 2016, the facility retired unit 1, and in February of 2019, the facility retired the remaining two units. The facility has not emitted any SO_2 emissions since that time. Montrose is located in Henry County. Figure 1 provides the location of the Montrose facility.

Purpose

The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) is submitting this modeling analysis to the United States Environmental Protection Agency (EPA)

[1] See 83 FR 1098, January 9, 2018

for Montrose pursuant to 40 CFR 51.1205 (b)(2). According to 40 CFR 51.1205 (b)(2), the Air Program will no longer be subjected to the requirements of paragraph (b) for Montrose if it provides air quality modeling demonstrating that the air quality values at all receptors in the modeling analysis are no greater than 50 percent of the 2010 SO_2 standard. In this modeling analysis, the Air Program demonstrates that all the receptors around Montrose are below 50 percent of the level of the 2010 SO_2 standard. Based on the modeling analysis contained in this report, the highest modeled 3-year design value from 2018-2020 for any receptor in the analysis is 8.33 parts per billion (ppb). In current days the facility is no longer running therefore, the Air Program requests EPA approval to remove Montrose from the requirement to be included in future ongoing attainment verification reports required by 40 CFR 51.1205(b).

Background

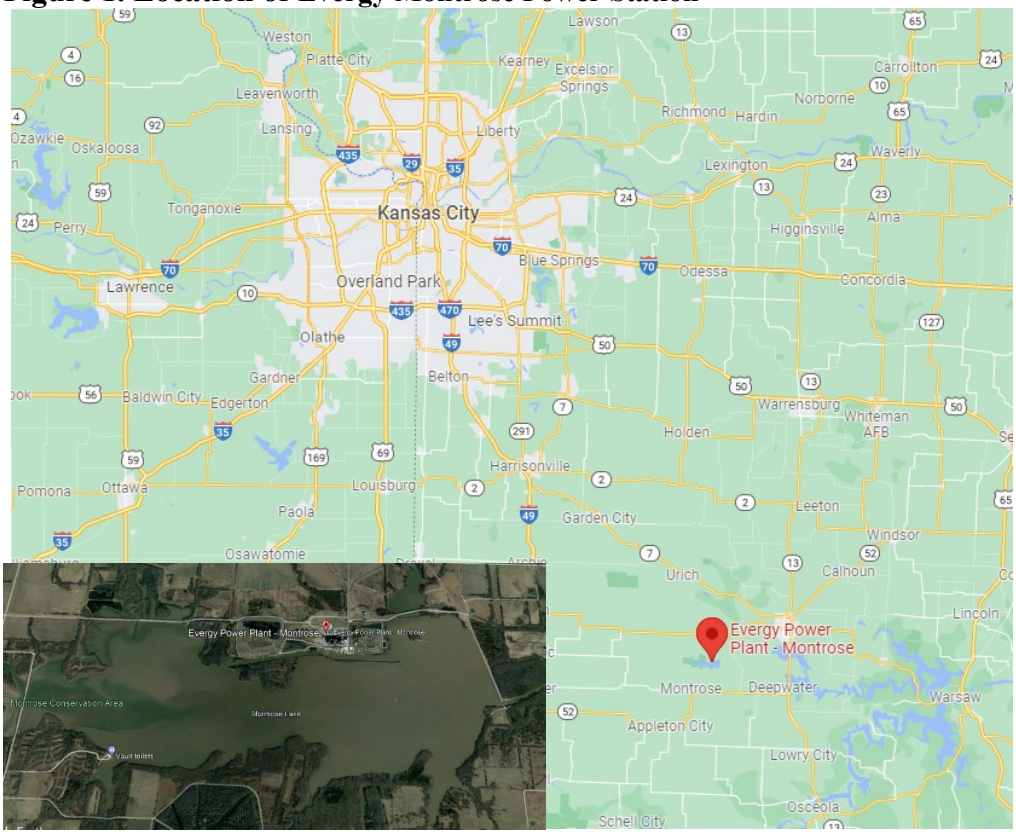
On June 22, 2010, EPA established a new 1-hour SO_2 standard of 75 parts per billion (ppb) or 196.5 micrograms per cubic meter (µg/m3). Following the promulgation of any new or revised National Ambient Air Quality Standard (NAAQS), EPA designates all areas in the country. The designation options are attainment (areas meeting the standard), nonattainment (areas not meeting the standard or nearby and contributing to an area not meeting the standard), or unclassifiable (areas where EPA is unable to determine whether the area is meeting or not meeting the standard).

Under the 2010 SO_2 standard, EPA's boundary designations process included four separate rounds. The third designation round focused on areas that contain either a violating monitor or a stationary source that, according to the EPA's Clean Air Market Database, emitted at least 2,000 tons of SO_2 in 2012 and that had not been designated in rounds 1 or 2.

The area around the Montrose facility was designated attainment/unclassifiable in round three based on modeling of actual emission levels.[2] The designation was effective on April 9, 2018. At the time of the designation, Montrose was owned and operated by Kansas City Power and Light (KCP&L). However, KCP&L and Westar Energy have since merged to form Evergy Inc., which is now the owner of the Montrose facility. At the time of designation, the Montrose facility had three coal-fired boilers. In 2016, the facility retired unit 1, and in February of 2019, the facility retired the remaining two units. The facility has not emitted any SO_2 emissions since that time. Montrose is located in Henry County. Figure 1 provides the location of the Montrose facility.

[2] See 83 FR 1098, January 9, 2018

Figure 1. Location of Evergy Montrose Power Station



Because the area surrounding Montrose was designated based on modeling of actual emission levels, the facility is subject to the ongoing attainment verification requirements under EPA's Data Requirements Rule. According to 40 CFR 51.1205 (b), for any area where modeling of actual SO_2 emissions serve as the basis for designating such area as the air agency shall submit an annual report to the EPA Regional Administrator by July 1 of each year, either as a stand-alone document made available for public inspection, or as an appendix to its Annual Monitoring Network Plan to verify the continued attainment of such areas where modeling of actual emissions informed the attainment designation. The Air Program submitted the first such report in 2017; however, the report the Air Program submitted in 2019 was the first such report that included the Montrose facility. The Air Program has continued submitting these reports each year since 2017.

In this report, which will be submitted in 2022, the Air Program is seeking to forgo the annual report for the Montrose facility. This is based on a modeling analysis demonstrating the modeled concentrations for all receptors around Montrose are below 50 percent of the 2010 SO_2 standard. This procedure for removing facilities from the ongoing reporting requirements is established under 40 CFR 51.1205 (b) (2). This provision states that an air agency will no longer be subjected to the requirements of paragraph (b) for a particular area if it provides air quality modeling demonstrating that air quality values at all receptors in the analysis are no greater than 50 percent of the 2010 SO_2 standard, and such demonstration is approved by the EPA Regional Administrator.

The modeling analysis within this document reflects 3-year design values, based on actual emissions from 2018 to 2020 in the area surrounding Montrose. The analysis demonstrates the concentrations at all receptors are below 50 percent of the 2010 SO_2 standard. The modeling analysis is consistent with the EPA's August 2016 Draft "SO_2 NAAQS Designations Modeling Technical Assistance Document (TAD).[3] This is the same guidance the Air Program followed when modeling the area around Montrose to inform the Round three designations.

This document details the modeling process the Air Program used and the results support a determination that Montrose qualifies for removal from the ongoing reporting requirements in 40 CFR 51.1205(b). All the AERMOD input and output files used in the analysis are provided in Attachment 1 to this appendix.

Model Selection

The Air Program performed the air dispersion modeling analysis using the American Meteorological Society (AMS) and EPA's Regulatory Air Dispersion Model (AERMOD) to determine the SO_2 concentrations surrounding Montrose that are comparable to the 2010 SO_2 standard. AERMOD is the preferred model for determining pollutant impacts from industrial source complexes where emissions are released from a variety of source types. The Air Program used the most recent version (21112) of the AERMOD dispersion model as well as the pre-processors to perform the air quality analyses necessary to make this demonstration.

The regulatory default options within the modeling system were set through the use of the MODELOPT keyword contained within the control pathway of the air quality model. These default options include terrain elevation data and stack-tip downwash calculations. The Air Program determined urban/rural site characteristics for the modeled area to account for differences in boundary layer concentrations and to determine whether the 4-hour half-life option for urban SO_2 sources applies. The Air Program considered both land-use and population density procedures to determine the Henry County area is primarily rural in character, rather than urban. Therefore, the Air Program used rural dispersion coefficients in this modeling analysis.

Meteorological Data

Met data was processed using AERMET (version 21112) and invoking the ADJ_U* option within AERMET, the meteorological data pre-processor for the AERMOD modeling system. AERMET extracts and processes meteorological data in order to calculate the boundary layer parameters that are necessary for the calculation of pollutant concentrations within the atmosphere. It is important to note that the Bowen ratio characteristics obtained from AERSURFACE (version 20060) and applied in Stage 3 AERMET processing are determined based upon the precipitation totals from the meteorological record for the time period being processed. For example, if the meteorological period reported above-average precipitation totals

[3] Draft SO_2 NAAQS Designations Modeling Technical Assistance Document, U.S. EPA Office of Air and Radiation, August 2016.

for 2017, the Bowen ratio values for wet surface moisture are chosen for Stage 3 processing in AERMET for 2017.

The Air Program selected the meteorological data from the Springfield upper air station and surface characteristics from the Whiteman Airport Weather Station based upon the spatial and temporal characteristics of the area. This is the same weather station used in the modeling analysis to inform the original attainment designation for the area. The meteorological analysis used in the previous modeling analysis, is repeated below. It included consideration of the proximity of the collection site to the area of interest, the complexity of the terrain in the area surrounding the weather station, the exposure of the meteorological sensor, and temporal variations in the local climate.

For upper air data, the Springfield upper air station is closest to Montrose at 128 km and best represents the vertical atmospheric characteristics of the region surrounding Montrose.

For surface data, the Whiteman (56 km), Sedalia (80 km), and Lee's Summit (81 km) stations are the closest to the Montrose facility.

Whiteman: The surface roughness values differ by 39 to 46% in summer and fall, and 10-16% in winter and spring. The main difference in land cover is the 52% water cover within 1km of Montrose, with remaining classifications of 30% planted/cultivated and 11% developed cover. Whiteman is 74% planted/cultivated and 21% developed, with no significant water. Albedo agrees within 10%. Bowen ratio differ by 45 to 80% for dry conditions, 30-65% for average conditions, and 25-40% for wet conditions.

Sedalia: The surface roughness values differ by over 120% in summer and fall, and by 10% for winter and spring. The land cover at Sedalia is mainly planted/cultivated at 88%, compared to Montrose at 52% water and 30% planted. Albedo agrees within 6-7% for all seasons. Bowen ration differs by 70-90% for dry conditions, 40-60% for average conditions, and 35-45% for wet conditions.

Lee's Summit: The surface roughness values differ by 90-100% for summer and fall, and 10% for winter and spring. The surface cover responsible for the surface roughness difference includes the 87% planted/cultivated area around Lee's Summit, and 52% water and 30% planted/cultivated area around Montrose. Albedo agrees within 7% for all seasons. Bowen ratio differs by 40-70% for dry conditions, 35-70% for average conditions, and 35-55% for wet conditions.

The next closest airports (Kansas City Downtown 107 km, Kaiser/Lake Ozark 124km) offer no improvement to the comparison of combined surface roughness, albedo, or Bowen ratios than the three closest surface weather stations. These two airports have significant developed area and tall tree canopy that creates significant differences with surface roughness values at Montrose.

Building Downwash

The Air Program calculated building downwash effects for the area using the latest version (04274) of the Building Profile Input Program (BPIP) with plume rise model enhancements (PRIME). The information needed to execute BPIP PRIME included the heights and locations of structures, which may contribute to building downwash, and the stack locations in relation to these structures. Based upon the facility configuration, BPIP determines if wake effects from surrounding structures are affecting the emissions from a stack. If structure wake effects are evident, flags are set to indicate the stacks affected by building wake zones. Once BPIP determines a structure is influencing a stack, it calculates the modeling inputs for building heights and widths necessary for the dispersion model to simulate the building downwash effects in the area. The Air Program has provided building downwash parameters in the modeling analysis for Montrose

Good Engineering Practice Stack Height

Good engineering practice (GEP) stack height refers to the height at which emission releases from isolated stacks or vents will not cause excessive ground level concentrations in the immediate vicinity of a source due to building downwash effects, or complex terrain. Section 123 of the Clean Air Act limits the modeling stack height to GEP when performing air quality analyses for State Implementation Plans or permitting purposes. However, EPA's 2016 Modeling TAD states that actual stack heights should be used in modeling analyses to support boundary designations or clean data determinations under the 2010 SO_2 standard, because those types of modeling analyses are intended to represent actual air quality levels that air quality monitors would measure if located in the area. Therefore, the Air Program modeled all stacks at their actual stack height in this analysis.

Background Concentration

According to EPA's SO_2 NAAQS Designations Modeling TAD, air quality modeling must consider background concentrations when determining compliance with the 2010 SO_2 standard. The background concentration comes from sources not explicitly modeled along with any unidentified sources.

The methodology of determining the background concentration in this document is based on the SO_2 designations modeling TAD. The Air Program used monitoring data from Mark Twain State Park in Missouri to establish the regional background concentration for the area. The design value for the 2018- 2020 period from the Mark Twain monitor is 4 parts per billions (ppb) or 10.46 microgram per cubic meters ($\mu g/m^3$). The Air Program added this background to the model-predicted concentrations to account for natural sources and sources not explicitly included in the modeling inventory.

Emission Sources

The emissions sources surrounding Montrose were evaluated to determine an interactive source inventory for the dispersion modeling analysis.

Evaluation of Sources to Model

Montrose is the only facility we modeled which was modeled for the years 2018-2020, no sources within 20 km emitted more than 8.33 ppb of SO2, therefore any small sources not included are accounted for in the established background concentration. The following bullets describe the source listed in Table 1 along with a discussion about how the source will be characterized in the modeling analysis:

- Evergy Montrose – Montrose includes three coal-fired boilers that generate electricity that is supplied to the grid. The plant is owned by Evergy. The air program used actual SO_2 emissions data from the continuous emission monitoring system (CEMS) located at this facility. The modeled years include the most recent three years (2018 – 2020). The use of CEMS data in the model for this facility allows the model to act as a surrogate for monitoring data. Units 2 and 3 vent to a combined stack. Their emissions are reported separately by unit; however, stack release parameters are only measured at the combined stack. The units are modeled separately but with the same hourly release parameter information as provided by the facility. Since none of the sources had emissions greater than 1 tpy, none were explicitly included in the modeling analysis, and instead were accounted for through the use of the established background concentration

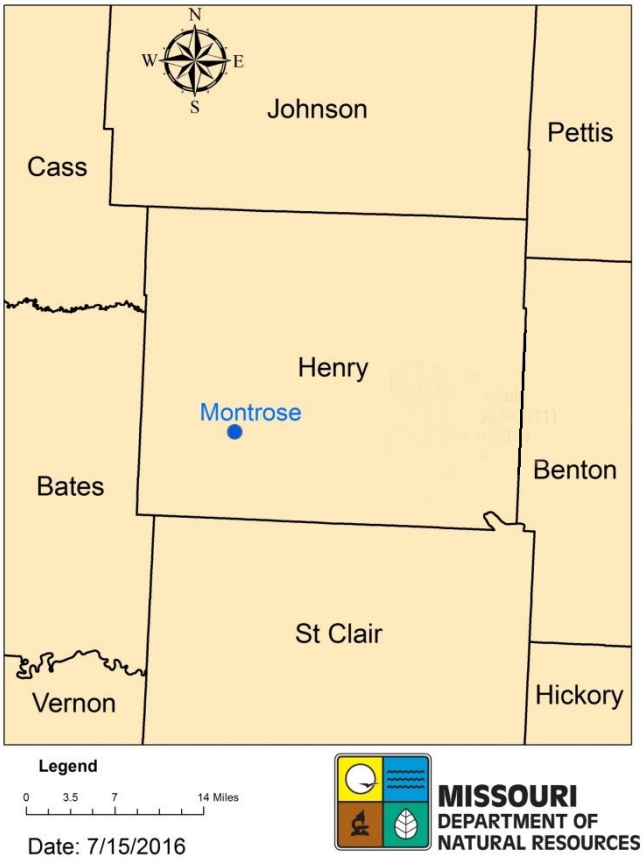


Table 1– Modeled Source Inventory: 2018-2020 SO_2 Emissions

Source Name	2018 SO_2 Emissions (tpy)	2019 SO_2 Emissions (tpy)	2020 SO_2 Emissions (tpy)
Montrose (083-0001)	1,547.96	0	0

Tables 2-4 provide details about the Montrose facility units, the emission release parameters modeled, and release parameters from the Montrose facility (year 2018). The Air Program used the emission release parameters in this modeling analysis.

Table 2– Details on the unit

Facility I.D.	Facility Name	Site Name	Emission Point I.D.	Model ID	Description	Release Type
083-0001	Kansas City Power and Light	Montrose	1	EP06	Boiler #1	POINT
083-0001	Kansas City Power and Light	Montrose	2	EP07	Boiler #2 (Vents to Combined Stack)	POINT
083-0001	Kansas City Power and Light	Montrose	3	EP08	Boiler #3(Vents to Combined Stack)	POINT

Table 3– Montrose Emission Release Parameters

Easting *Meters*	**Northing** *Meters*	**Base Elevation** *Meters*	**Actual Stack Height** *Meters*	**Stack Temperature** *Kelvin (From MoEIS)*	**Stack Exit Velocity** *Meters/Second (From MoEIS)*	**Stack Diameter** *Meters*	**Stack Area (sqft)**
418350.60	4240717.60	230.73	137.16	421.483	34.9	3.63	111
418248.20	4240719.30	230.73	135.94	421.483	34.9	5.09	218
418248.20	4240719.30	230.73	135.94	421.483	34.9	5.09	218

Receptor Grid Configuration

In the modeling analysis, the Air Program placed receptors at 50 m intervals around the facility property boundary. The Air Program then used a multi-tiered approach with higher receptor spacing as distance from the Montrose facility increased. The description below explains the receptor grid spacing the Air Program used in this analysis.

Multi-tier receptor grid:
From stacks to 1 km: 100 m spacing
From 1km to 3.5 km: 200 m spacing
From 3.5km to 10km: 5000 m spacing
From 10km to 40km: 10000 m spacing
The domain and receptor grid were extended to cover a 40 km grid to this modeling analysis.

Terrain Elevations

In addition to assigning receptor locations, the receptor options within the AERMOD system allow the user to input information regarding the terrain surrounding the facility. AERMOD is capable of calculating air pollutant concentrations in terrain classified as simple, flat, complex or mountainous land. In order to calculate concentrations in complex or mountainous terrain situations, AERMOD must have information about the surrounding terrain and its features. To aid in the definition of the terrain features, EPA developed a pre-processor, AERMAP (version 18081) to search terrain data for base elevations and features that may influence the dispersion of pollutants within the modeling domain.

AERMAP assigns outstanding features an elevation referred to as the hill height scale; a value that users must include in the AERMOD input file. The Air Program processed National Elevation Data (NED) in the GeoTIFF format from the United States Geological Survey Seamless Data Server through the AERMAP program in order to obtain the base elevation for each receptor and source within the modeling domain. In addition, the Air Program extracted the hill height scale for each receptor as required by the AERMOD system in order to determine terrain influences within the modeling domain. The Air Program converted all source, receptor and terrain elevation data to UTM Zone 15 in the NAD83 geodetic datum.

Model Results

2018-2020 CEMS Results (Variable Release) with Interactive source (40 km Domain)
Number of Violating Receptors: 0.
The modeling results are plotted in Figure 3. The highest modeled concentration was 21.82 $\mu g/m^3$ or 8.33 ppb which, included the background concentration being 4 ppb so essentially no impact. The highest concentrations are expected to occur near the property boundary with concentrations decreasing as distance from the facility increases.

Evergy Montrose Modeled Concentrations 2018-2020 Hourly Emissions

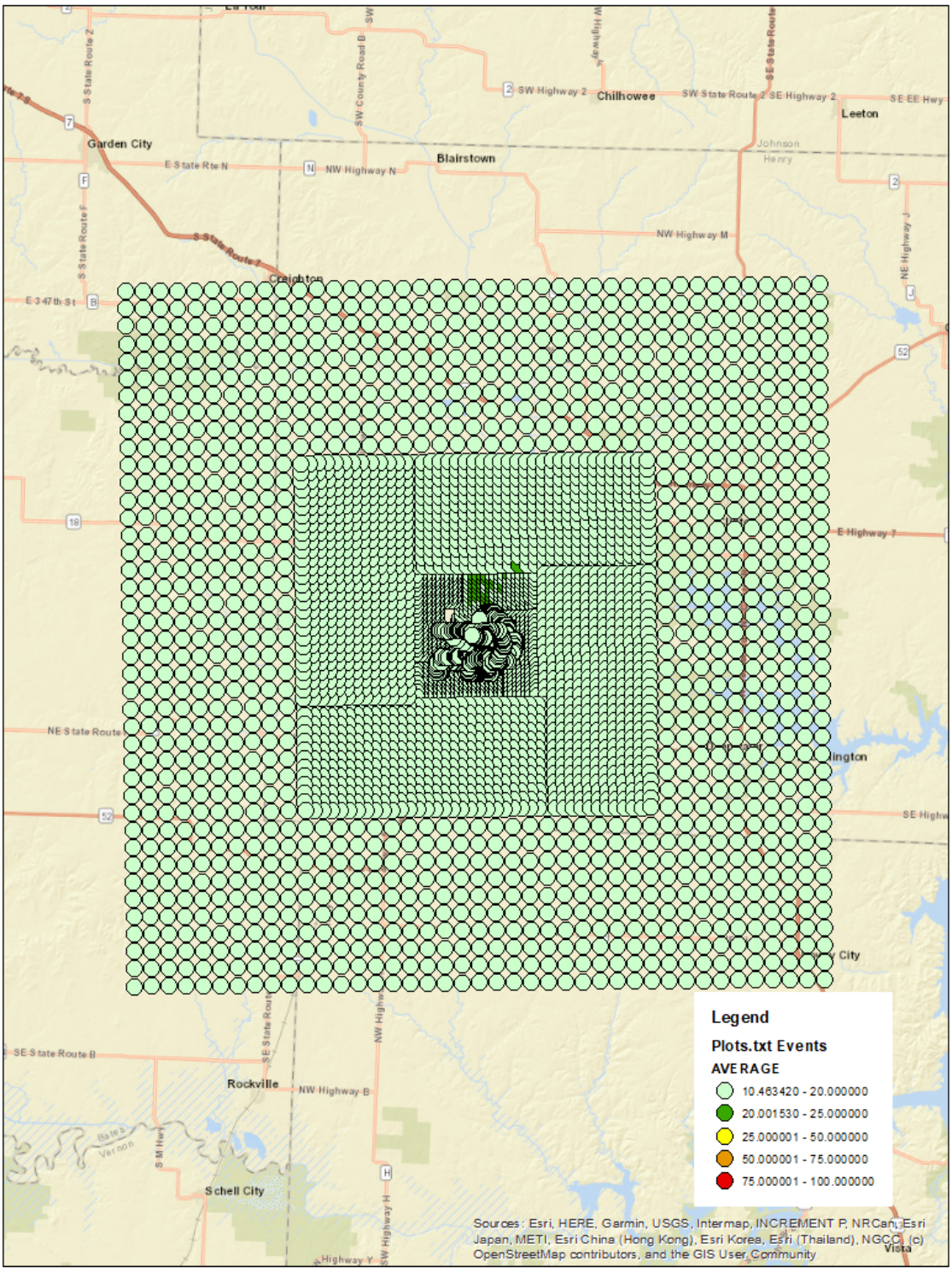


Figure 3 – Evergy-Montrose Hourly Actual Emissions Modeled Concentrations Plot 2018-2020

Conclusion

Based on this modeling exercise, the Air Program requests EPA approval to remove Evergy Montrose from the ongoing annual SO_2 emissions verification requirements pursuant to 40 CFR 51.1205 (b)(2).

Attachment 1 AERMOD Input and Output Files (Receptors shorten due to its size)

```
**
**************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 10.2.0
** Lakes Environmental Software Inc.
** Date: 1/4/2022
** File: P:\APCP\Planning\Users\Valion Joyce\20218 to 2020 montrose\With Background\Input.inp
**
**************************************
**
**
**************************************
** AERMOD Control Pathway
**************************************
**
**
CO STARTING
  TITLEONE C:\Lakes\20218 to 2020 montrose\20218 to 2020 montrose.isc
  MODELOPT DFAULT CONC VECTORWS
  AVERTIME 1 ANNUAL
  POLLUTID SO2
  RUNORNOT RUN
CO FINISHED
```

```
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
  LOCATION STACK1      POINT     418262.000  4240713.000     230.734
** DESCRSRC Stack S1
  LOCATION STACK2      POINT     418359.000  4240710.000     231.038
** DESCRSRC Stack s2
  BACKGRND ANNUAL 4.0
  BACKUNIT PPB
** Source Parameters **
  SRCPARAM STACK1          0.0   137.160   255.372   0.00000    3.627
  SRCPARAM STACK2          1.0   137.160   421.483  35.00000    5.090

** Building Downwash **
  BUILDHGT STACK1        35.97    49.07    49.07    49.07    49.07    49.07
  BUILDHGT STACK1        49.07    20.42     0.00    20.42    49.07    49.07
  BUILDHGT STACK1        49.07    49.07    49.07    49.07    35.97    35.97
  BUILDHGT STACK1        35.97    49.07    49.07    49.07    49.07    49.07
  BUILDHGT STACK1        49.07    20.42     0.00    20.42    49.07    49.07
  BUILDHGT STACK1        49.07    49.07    49.07    49.07    35.97    35.97

  BUILDHGT STACK2        11.28    11.28    11.28    11.28    11.28    11.28
```

BUILDHGT STACK2 11.28 11.28 11.28 49.07 49.07 49.07

BUILDHGT STACK2 49.07 49.07 49.07 35.97 35.97 35.97

BUILDHGT STACK2 11.28 11.28 11.28 11.28 11.28 11.28

BUILDHGT STACK2 11.28 11.28 11.28 35.97 35.97 49.07

BUILDHGT STACK2 49.07 49.07 49.07 35.97 35.97 35.97

BUILDWID STACK1 152.60 66.35 65.69 63.03 58.46 30.32

BUILDWID STACK1 29.32 46.90 0.00 52.79 43.96 51.99

BUILDWID STACK1 58.43 63.11 65.86 66.62 151.60 152.73

BUILDWID STACK1 152.60 66.35 65.69 63.03 58.46 30.32

BUILDWID STACK1 29.32 46.90 0.00 52.79 43.96 51.99

BUILDWID STACK1 58.43 63.11 65.86 66.62 151.60 152.73

BUILDWID STACK2 41.43 51.72 60.43 67.31 72.15 74.79

BUILDWID STACK2 75.16 73.25 69.11 34.59 43.96 51.99

BUILDWID STACK2 58.43 63.11 28.23 145.87 151.60 152.73

BUILDWID STACK2 41.43 51.72 60.43 67.31 72.15 74.79

BUILDWID STACK2 75.16 73.25 69.11 73.19 94.58 51.99

BUILDWID STACK2 58.43 63.11 28.23 145.87 151.60 152.73

BUILDLEN STACK1 33.29 43.96 51.99 58.43 63.11 28.23

BUILDLEN STACK1 25.81 91.59 0.00 90.76 66.35 65.69

BUILDLEN STACK1 63.03 58.46 52.12 44.19 43.62 17.51

BUILDLEN STACK1 33.29 43.96 51.99 58.43 63.11 28.23

BUILDLEN STACK1 25.81 91.59 0.00 90.76 66.35 65.69

BUILDLEN STACK1 63.03 58.46 52.12 44.19 43.62 55.21

BUILDLEN STACK2 72.60 74.97 75.06 72.86 68.46 61.97

```
BUILDLEN STACK2      53.60   43.60   32.28   64.99   66.35   65.69
BUILDLEN STACK2      63.03   58.46   30.32   68.40   43.62   17.51
BUILDLEN STACK2      72.60   74.97   75.06   72.86   68.46   61.97
BUILDLEN STACK2      53.60   43.60   32.28  152.60  148.70   65.69
BUILDLEN STACK2      63.03   58.46   30.32   94.53   59.63   55.21

XBADJ  STACK1        67.71   17.58    6.82   -4.16  -15.00   54.67
XBADJ  STACK1        51.99  -10.21    0.00  -68.38  -68.39  -74.41
XBADJ  STACK1       -78.17  -79.55  -78.51  -75.09 -101.59  -92.09
XBADJ  STACK1      -101.00  -61.54  -58.80  -54.28  -48.10  -82.91
XBADJ  STACK1       -77.80  -81.38    0.00  -22.38    2.05    8.72
XBADJ  STACK1        15.13   21.09   26.40   30.91   57.97   36.88

XBADJ  STACK2        -2.79   -0.79    1.23    3.21    5.10    6.83
XBADJ  STACK2         8.35    9.62   10.60 -156.35 -160.57 -159.92
XBADJ  STACK2      -154.40 -144.20  -82.69 -144.00 -121.39  -95.09
XBADJ  STACK2       -69.81  -74.18  -76.29  -76.08  -73.56  -68.80
XBADJ  STACK2       -61.95  -53.23  -42.88   21.25   33.96   94.23
XBADJ  STACK2        91.37   85.74   52.37   49.47   61.76   39.88

YBADJ  STACK1         1.51   35.22   41.57   46.65   50.32   16.43
YBADJ  STACK1        28.13   29.23    0.00   36.01   39.56   32.81
YBADJ  STACK1        25.06   16.55    7.54   -1.71   27.44   13.16
YBADJ  STACK1        -1.51  -35.22  -41.57  -46.65  -50.32  -16.43
YBADJ  STACK1       -28.13  -29.23    0.00  -36.01  -39.56  -32.81
YBADJ  STACK1       -25.06  -16.55   -7.54    1.71  -27.44  -13.16

YBADJ  STACK2       -21.24  -15.10   -8.50   -1.64    5.27   12.02
```

```
  YBADJ    STACK2        18.40   24.23   29.32   31.22    9.20  -13.09

  YBADJ    STACK2       -34.99  -55.83  -13.71  -49.25  -67.57  -83.84

  YBADJ    STACK2        21.24   15.10    8.50    1.64   -5.27  -12.02

  YBADJ    STACK2       -18.40  -24.23  -29.32  -50.52  -34.51   13.09

  YBADJ    STACK2        34.99   55.83   13.71   49.25   67.57   83.84


  HOUREMIS "P:\APCP\PLANNING\USERS\VALION JOYCE\20218 TO 2020 MONTROSE\REAL DATA
FOR STACK2.EMI" STACK2

  SRCGROUP ALL      BACKGROUND

SO FINISHED

**

**************************************

** AERMOD Receptor Pathway

**************************************

**

**

RE STARTING

** DESCRREC "" ""

  DISCCART    417248.19   4239719.00    0.00    0.00

  DISCCART    417248.19   4239819.00    0.00    0.00

  DISCCART    417248.19   4239919.00    0.00    0.00

  DISCCART    417248.19   4240019.00    0.00    0.00

  DISCCART    417248.19   4240119.00    0.00    0.00

RE FINISHED

**

**************************************

** AERMOD Meteorology Pathway

**************************************
```

```
**

**

ME STARTING

** Surface File Path: P:\APCP\Planning\Users\Valion Joyce\20218 to 2020 montrose\

  SURFFILE "20218 to 2020 montrose.SFC"

** Profile File Path: P:\APCP\Planning\Users\Valion Joyce\20218 to 2020 montrose\

  PROFFILE "20218 to 2020 montrose.PFL"

  SURFDATA 3947 2018 KANSAS_CITY/INT'L_ARPT

  UAIRDATA 13996 2018 TOPEKA/MUNICIPAL_ARPT

  PROFBASE 10.0 METERS

ME FINISHED

**

**************************************

** AERMOD Output Pathway

**************************************

**

**

OU STARTING

  RECTABLE ALLAVE 4TH

  RECTABLE 1 4TH

** Maximum Annual Average POST files for Each Met Year

  POSTFILE ANNUAL ALL PLOT "P:\APCP\Planning\Users\Valion Joyce\20218 to 2020 montrose\20218 to
2020 montrose.AD\ANNUAL_G001.PLT" 31

** Auto-Generated Plotfiles

  PLOTFILE 1 ALL 4TH "P:\APCP\Planning\Users\Valion Joyce\20218 to 2020 montrose\20218 to 2020
montrose.AD\01H4GALL.PLT" 32

  PLOTFILE ANNUAL ALL "P:\APCP\Planning\Users\Valion Joyce\20218 to 2020 montrose\20218 to 2020
montrose.AD\AN00GALL.PLT" 33

  SUMMFILE "P:\APCP\Planning\Users\Valion Joyce\20218 to 2020 montrose\20218 to 2020 montrose.sum"
```

OU FINISHED

**

****

** Project Parameters

****

** PROJCTN CoordinateSystemUTM

** DESCPTN UTM: Universal Transverse Mercator

** DATUM   World Geodetic System 1984

** DTMRGN   Global Definition

** UNITS   m

** ZONE   15

** ZONEINX 0

**

Excerpt of AERMOD output file

```
**
****************************************
**
** AERMOD Input Produced by:
** AERMOD View Ver. 10.2.0
** Lakes Environmental Software Inc.
** Date: 1/3/2022
** File: P:\APCP\Planning\Users\Valion Joyce\20218 to 2020
montrose\20218 to 2020 montrose.ADI
**
****************************************
**
**
****************************************
** AERMOD Control Pathway
****************************************
**
**
CO STARTING
   TITLEONE C:\Lakes\20218 to 2020 montrose\20218 to 2020 montrose.isc
   MODELOPT DFAULT CONC VECTORWS
   AVERTIME 1 ANNUAL
   POLLUTID SO2
   RUNORNOT RUN
```

```
CO FINISHED
**
**************************************
** AERMOD Source Pathway
**************************************
**
**
SO STARTING
** Source Location **
** Source ID - Type - X Coord. - Y Coord. **
   LOCATION STACK1       POINT      418262.000  4240713.000
230.734
** DESCRSRC Stack S1
   LOCATION STACK2       POINT      418359.000  4240710.000
231.038
** DESCRSRC Stack s2
   BACKGRND ANNUAL 4.0
   BACKUNIT PPB
** Source Parameters **
   SRCPARAM STACK1            0.0   137.160   255.372   0.00000
3.627
   SRCPARAM STACK2            1.0   137.160   421.483  35.00000
5.090

** Building Downwash **
   BUILDHGT STACK1          35.97    49.07    49.07    49.07    49.07
49.07
   BUILDHGT STACK1          49.07    20.42     0.00    20.42    49.07
49.07
   BUILDHGT STACK1          49.07    49.07    49.07    49.07    35.97
35.97
   BUILDHGT STACK1          35.97    49.07    49.07    49.07    49.07
49.07
   BUILDHGT STACK1          49.07    20.42     0.00    20.42    49.07
49.07
   BUILDHGT STACK1          49.07    49.07    49.07    49.07    35.97
35.97

   BUILDHGT STACK2          11.28    11.28    11.28    11.28    11.28
11.28
   BUILDHGT STACK2          11.28    11.28    11.28    49.07    49.07
49.07
   BUILDHGT STACK2          49.07    49.07    49.07    35.97    35.97
35.97
   BUILDHGT STACK2          11.28    11.28    11.28    11.28    11.28
11.28
   BUILDHGT STACK2          11.28    11.28    11.28    35.97    35.97
49.07
   BUILDHGT STACK2          49.07    49.07    49.07    35.97    35.97
35.97
```

```
   BUILDWID STACK1         152.60    66.35    65.69    63.03    58.46
30.32
   BUILDWID STACK1          29.32    46.90     0.00    52.79    43.96
51.99
   BUILDWID STACK1          58.43    63.11    65.86    66.62   151.60
152.73
   BUILDWID STACK1         152.60    66.35    65.69    63.03    58.46
30.32
   BUILDWID STACK1          29.32    46.90     0.00    52.79    43.96
51.99
   BUILDWID STACK1          58.43    63.11    65.86    66.62   151.60
152.73

   BUILDWID STACK2          41.43    51.72    60.43    67.31    72.15
74.79
   BUILDWID STACK2          75.16    73.25    69.11    34.59    43.96
51.99
   BUILDWID STACK2          58.43    63.11    28.23   145.87   151.60
152.73
   BUILDWID STACK2          41.43    51.72    60.43    67.31    72.15
74.79
   BUILDWID STACK2          75.16    73.25    69.11    73.19    94.58
51.99
   BUILDWID STACK2          58.43    63.11    28.23   145.87   151.60
152.73

   BUILDLEN STACK1          33.29    43.96    51.99    58.43    63.11
28.23
   BUILDLEN STACK1          25.81    91.59     0.00    90.76    66.35
65.69
   BUILDLEN STACK1          63.03    58.46    52.12    44.19    43.62
17.51
   BUILDLEN STACK1          33.29    43.96    51.99    58.43    63.11
28.23
   BUILDLEN STACK1          25.81    91.59     0.00    90.76    66.35
65.69
   BUILDLEN STACK1          63.03    58.46    52.12    44.19    43.62
55.21

   BUILDLEN STACK2          72.60    74.97    75.06    72.86    68.46
61.97
   BUILDLEN STACK2          53.60    43.60    32.28    64.99    66.35
65.69
   BUILDLEN STACK2          63.03    58.46    30.32    68.40    43.62
17.51
   BUILDLEN STACK2          72.60    74.97    75.06    72.86    68.46
61.97
   BUILDLEN STACK2          53.60    43.60    32.28   152.60   148.70
65.69
   BUILDLEN STACK2          63.03    58.46    30.32    94.53    59.63
55.21
```

```
   XBADJ    STACK1          67.71    17.58     6.82    -4.16   -15.00
54.67
   XBADJ    STACK1          51.99   -10.21     0.00   -68.38   -68.39
-74.41
   XBADJ    STACK1         -78.17   -79.55   -78.51   -75.09  -101.59
-92.09
   XBADJ    STACK1        -101.00   -61.54   -58.80   -54.28   -48.10
-82.91
   XBADJ    STACK1         -77.80   -81.38     0.00   -22.38     2.05
8.72
   XBADJ    STACK1          15.13    21.09    26.40    30.91    57.97
36.88

   XBADJ    STACK2          -2.79    -0.79     1.23     3.21     5.10
6.83
   XBADJ    STACK2           8.35     9.62    10.60  -156.35  -160.57
-159.92
   XBADJ    STACK2        -154.40  -144.20   -82.69  -144.00  -121.39
-95.09
   XBADJ    STACK2         -69.81   -74.18   -76.29   -76.08   -73.56
-68.80
   XBADJ    STACK2         -61.95   -53.23   -42.88    21.25    33.96
94.23
   XBADJ    STACK2          91.37    85.74    52.37    49.47    61.76
39.88

   YBADJ    STACK1           1.51    35.22    41.57    46.65    50.32
16.43
   YBADJ    STACK1          28.13    29.23     0.00    36.01    39.56
32.81
   YBADJ    STACK1          25.06    16.55     7.54    -1.71    27.44
13.16
   YBADJ    STACK1          -1.51   -35.22   -41.57   -46.65   -50.32
-16.43
   YBADJ    STACK1         -28.13   -29.23     0.00   -36.01   -39.56
-32.81
   YBADJ    STACK1         -25.06   -16.55    -7.54     1.71   -27.44
-13.16

   YBADJ    STACK2         -21.24   -15.10    -8.50    -1.64     5.27
12.02
   YBADJ    STACK2          18.40    24.23    29.32    31.22     9.20
-13.09
   YBADJ    STACK2         -34.99   -55.83   -13.71   -49.25   -67.57
-83.84
   YBADJ    STACK2          21.24    15.10     8.50     1.64    -5.27
-12.02
   YBADJ    STACK2         -18.40   -24.23   -29.32   -50.52   -34.51
13.09
```

```
   YBADJ     STACK2           34.99     55.83     13.71     49.25     67.57
83.84

   HOUREMIS "REAL DATA FOR STACK2.EMI" STACK2
   SRCGROUP ALL      BACKGROUND
SO FINISHED
**
****************************************
** AERMOD Receptor Pathway
****************************************
**
**
RE STARTING
** DESCRREC "" ""
   DISCCART    417248.19   4239719.00    0.00    0.00
   DISCCART    417248.19   4239819.00    0.00    0.00
   DISCCART    417248.19   4239919.00    0.00    0.00
   DISCCART    417248.19   4240019.00    0.00    0.00
```

Meteorological File Excerpts (2018-2020 formatted surface and profile files, first 12 hours of each file)

Surface (.sfc)

```
   39.29N   94.73W        UA_ID:   13996  SF_ID:   03947  OS_ID:          VERSION: 19191   THRESH_1MIN
=  0.50 m/s;  ADJ_U*  CCVR_Sub TEMP_Sub

18  1  1   1  1 -23.9  0.213 -9.000 -9.000 -999.  236.    50.0  0.0160   0.77   1.00   3.66  355.0   10.1  251.4   2.0
0   0.00    71.  1007.    0 ADJ-A1  NoSubs

18  1  1   1  2 -25.3  0.225 -9.000 -9.000 -999.  256.    55.6  0.0160   0.77   1.00   3.85  354.0   10.1  250.9   2.0
0   0.00    74.  1007.    0 ADJ-A1  NoSubs

18  1  1   1  3 -25.7  0.229 -9.000 -9.000 -999.  262.    57.5  0.0160   0.77   1.00   3.91  342.0   10.1  250.9   2.0
0   0.00    71.  1006.    0 ADJ-A1  NoSubs

18  1  1   1  4 -23.2  0.206 -9.000 -9.000 -999.  224.    46.6  0.0210   0.77   1.00   3.39  326.0   10.1  250.3   2.0
0   0.00    74.  1008.    0 ADJ-A1  NoSubs

18  1  1   1  5 -22.2  0.197 -9.000 -9.000 -999.  210.    42.6  0.0210   0.77   1.00   3.25  322.0   10.1  250.3   2.0
0   0.00    74.  1008.    0 ADJ-A1  NoSubs

18  1  1   1  6 -18.4  0.172 -9.000 -9.000 -999.  171.    32.5  0.0210   0.77   1.00   2.86  325.0   10.1  249.8   2.0
0   0.00    74.  1006.    0 ADJ-A1  NoSubs

18  1  1   1  7 -14.5  0.152 -9.000 -9.000 -999.  142.    25.3  0.0210   0.77   1.00   2.55  326.0   10.1  249.2   2.0
0   0.00    74.  1008.    0 ADJ-A1  NoSubs
```

18 1 1 1 8 -14.4 0.151 -9.000 -9.000 -999. 141. 25.1 0.0210 0.77 1.00 2.54 314.0 10.1 249.2 2.0 0 0.00 78. 1008. 0 ADJ-A1 NoSubs

18 1 1 1 9 -10.4 0.175 -9.000 -9.000 -999. 175. 46.3 0.0210 0.77 0.46 2.86 306.0 10.1 250.9 2.0 0 0.00 71. 1007. 0 ADJ-A1 NoSubs

18 1 1 1 10 24.8 0.191 0.546 0.015 235. 200. -25.1 0.0210 0.77 0.30 2.61 319.0 10.1 252.5 2.0 0 0.00 62. 1008. 0 ADJ-A1 NoSubs

18 1 1 1 11 57.4 0.206 0.770 0.015 285. 225. -13.7 0.0210 0.77 0.24 2.69 307.0 10.1 254.2 2.0 0 0.00 59. 1008. 0 ADJ-A1 NoSubs

18 1 1 1 12 77.1 0.213 0.922 0.015 364. 235. -11.2 0.0210 0.77 0.22 2.72 310.0 10.1 255.9 2.0 0 0.00 54. 1006. 0 ADJ-A1 NoSubs

18 1 1 1 13 82.4 0.217 0.998 0.016 433. 243. -11.2 0.0210 0.77 0.22 2.78 305.0 10.1 257.5 2.0 0 0.00 52. 1006. 0 ADJ-A1 NoSubs

18 1 1 1 14 78.1 0.204 1.018 0.017 485. 221. -9.7 0.0190 0.77 0.23 2.62 296.0 10.1 258.8 2.0 0 0.00 49. 1006. 3 ADJ-A1 NoSubs

18 1 1 1 15 54.8 0.184 0.918 0.017 505. 190. -10.2 0.0210 0.77 0.25 2.34 308.0 10.1 259.9 2.0 0 0.00 45. 1004. 3 ADJ-A1 NoSubs

18 1 1 1 16 14.1 0.175 0.585 0.017 510. 176. -34.3 0.0160 0.77 0.33 2.57 339.0 10.1 259.9 2.0 0 0.00 43. 1006. 0 ADJ-A1 NoSubs

18 1 1 1 17 -10.3 0.138 -9.000 -9.000 -999. 123. 22.8 0.0140 0.77 0.54 2.45 2.0 10.1 258.1 2.0 0 0.00 52. 1004. 3 ADJ-A1 NoSubs

18 1 1 1 18 -13.9 0.148 -9.000 -9.000 -999. 136. 23.9 0.0140 0.77 1.00 2.64 15.0 10.1 257.0 2.0 0 0.00 54. 1004. 3 ADJ-A1 NoSubs

18 1 1 1 19 -17.6 0.167 -9.000 -9.000 -999. 164. 30.8 0.0160 0.77 1.00 2.91 40.0 10.1 256.4 2.0 0 0.00 59. 1004. 5 ADJ-A1 NoSubs

18 1 1 1 20 -12.5 0.140 -9.000 -9.000 -999. 126. 21.6 0.0160 0.77 1.00 2.47 51.0 10.1 256.4 2.0 0 0.00 57. 1004. 3 ADJ-A1 NoSubs

18 1 1 1 21 -10.1 0.125 -9.000 -9.000 -999. 106. 17.3 0.0140 0.77 1.00 2.27 27.0 10.1 255.3 2.0 0 0.00 59. 1003. 0 ADJ-A1 NoSubs

18 1 1 1 22 -20.4 0.184 -9.000 -9.000 -999. 190. 37.3 0.0140 0.77 1.00 3.25 21.0 10.1 253.8 2.0 0 0.00 65. 1004. 0 ADJ-A1 NoSubs

18 1 1 1 23 -20.8 0.187 -9.000 -9.000 -999. 194. 38.6 0.0140 0.77 1.00 3.30 18.0 10.1 253.1 2.0 0 0.00 68. 1004. 0 ADJ-A1 NoSubs

18 1 1 1 24 -16.8 0.163 -9.000 -9.000 -999. 157. 29.1 0.0140 0.77 1.00 2.89 29.0 10.1 253.1 2.0 0 0.00 68. 1003. 0 ADJ-A1 NoSubs

18 1 2 2 1 -20.8 0.188 -9.000 -9.000 -999. 195. 38.7 0.0160 0.77 1.00 3.24 41.0 10.1 253.1 2.0 0 0.00 68. 1004. 0 ADJ-A1 NoSubs

18 1 2 2 2 -13.2 0.143 -9.000 -9.000 -999. 130. 22.6 0.0140 0.77 1.00 2.57 29.0 10.1 252.0 2.0 0 0.00 75. 1004. 0 ADJ-A1 NoSubs

18 1 2 2 3 -8.9 0.117 -9.000 -9.000 -999. 96. 15.9 0.0140 0.77 1.00 2.13 4.0 10.1 252.5 2.0 0 0.00 72. 1003. 0 ADJ-A1 NoSubs

18 1 2 2 4 -3.0 0.070 -9.000 -9.000 -999. 45. 10.2 0.0140 0.77 1.00 1.20 12.0 10.1 252.0 2.0 0 0.00 75. 1004. 0 ADJ-A1 NoSubs

18 1 2 2 5 -3.1 0.071 -9.000 -9.000 -999. 46. 10.4 0.0160 0.77 1.00 1.20 88.0 10.1 252.5 2.0 0 0.00 75. 1003. 0 ADJ-A1 NoSubs

18 1 2 2 6 -5.7 0.092 -9.000 -9.000 -999. 67. 12.2 0.0110 0.77 1.00 1.76 192.0 10.1 252.0 2.0 0 0.00 78. 1001. 0 ADJ-A1 NoSubs

18 1 2 2 7 -6.7 0.100 -9.000 -9.000 -999. 76. 13.3 0.0110 0.77 1.00 1.91 185.0 10.1 252.5 2.0 0 0.00 75. 1002. 0 ADJ-A1 NoSubs

18 1 2 2 8 -9.3 0.118 -9.000 -9.000 -999. 97. 15.9 0.0110 0.77 1.00 2.23 185.0 10.1 253.1 2.0 0 0.00 78. 1002. 0 ADJ-A1 NoSubs

18 1 2 2 9 -8.6 0.146 -9.000 -9.000 -999. 134. 32.2 0.0110 0.77 0.47 2.66 205.0 10.1 255.9 2.0 0 0.00 75. 1000. 0 ADJ-A1 NoSubs

18 1 2 2 10 24.1 0.258 0.380 0.015 81. 314. -63.4 0.0260 0.77 0.30 3.59 218.0 10.1 259.2 2.0 0 0.00 66. 1001. 0 ADJ-A1 NoSubs

18 1 2 2 11 62.1 0.275 0.653 0.016 160. 346. -29.8 0.0260 0.77 0.24 3.66 217.0 10.1 260.9 2.0 0 0.00 55. 1000. 3 ADJ-A1 NoSubs

18 1 2 2 12 81.8 0.326 0.864 0.016 280. 447. -37.7 0.0260 0.77 0.22 4.41 222.0 10.1 263.8 2.0 0 0.00 44. 998. 3 ADJ-A1 NoSubs

18 1 2 2 13 87.2 0.382 0.967 0.016 369. 567. -56.9 0.0260 0.77 0.22 5.29 223.0 10.1 265.4 2.0 0 0.00 39. 996. 3 ADJ-A1 NoSubs

18 1 2 2 14 73.3 0.364 0.952 0.016 418. 528. -58.6 0.0260 0.77 0.23 5.05 232.0 10.1 265.9 2.0 0 0.00 35. 995. 0 ADJ-A1 NoSubs

18 1 2 2 15 49.9 0.366 0.857 0.016 446. 531. -86.7 0.0260 0.77 0.25 5.16 225.0 10.1 266.4 2.0 0 0.00 36. 993. 0 ADJ-A1 NoSubs

18 1 2 2 16 14.4 0.402 0.570 0.016 455. 611. -399.0 0.0260 0.77 0.33 5.90 226.0 10.1 267.0 2.0 0 0.00 34. 993. 0 ADJ-A1 NoSubs

18 1 2 2 17 -27.3 0.360 -9.000 -9.000 -999. 520. 151.2 0.0260 0.77 0.54 5.55 228.0 10.1 265.9 2.0 0 0.00 37. 992. 3 ADJ-A1 NoSubs

18 1 2 2 18 -32.8 0.314 -9.000 -9.000 -999. 423. 108.4 0.0260 0.77 1.00 4.90 224.0 10.1 264.9 2.0
0 0.00 40. 990. 3 ADJ-A1 NoSubs

18 1 2 2 19 -32.7 0.313 -9.000 -9.000 -999. 419. 107.5 0.0260 0.77 1.00 4.88 221.0 10.1 264.9 2.0
0 0.00 40. 989. 0 ADJ-A1 NoSubs

18 1 2 2 20 -38.2 0.366 -9.000 -9.000 -999. 532. 147.5 0.0260 0.77 1.00 5.68 222.0 10.1 264.9 2.0
0 0.00 40. 988. 7 ADJ-A1 NoSubs

18 1 2 2 21 -44.9 0.432 -9.000 -9.000 -999. 680. 205.0 0.0260 0.77 1.00 6.65 220.0 10.1 265.4 2.0
0 0.00 41. 987. 10 ADJ-A1 NoSubs

18 1 2 2 22 -45.6 0.438 -9.000 -9.000 -999. 695. 210.8 0.0260 0.77 1.00 6.74 226.0 10.1 265.4 2.0
0 0.00 43. 987. 10 ADJ-A1 NoSubs

18 1 2 2 23 -51.1 0.492 -9.000 -9.000 -999. 828. 266.4 0.0260 0.77 1.00 7.54 228.0 10.1 265.9 2.0
0 0.00 45. 986. 10 ADJ-A1 NoSubs

18 1 2 2 24 -40.9 0.395 -9.000 -9.000 -999. 604. 171.8 0.0260 0.77 1.00 6.11 228.0 10.1 265.9 2.0
0 0.00 45. 984. 5 ADJ-A1 NoSubs

18 1 3 3 1 -32.3 0.311 -9.000 -9.000 -999. 420. 106.1 0.0260 0.77 1.00 4.85 227.0 10.1 265.4 2.0
0 0.00 51. 985. 0 ADJ-A1 NoSubs

18 1 3 3 2 -32.4 0.312 -9.000 -9.000 -999. 418. 107.0 0.0230 0.77 1.00 4.97 248.0 10.1 265.4 2.0
0 0.00 51. 985. 0 ADJ-A1 NoSubs

18 1 3 3 3 -24.0 0.231 -9.000 -9.000 -999. 270. 58.9 0.0230 0.77 1.00 3.73 251.0 10.1 265.9 2.0
0 0.00 51. 984. 10 ADJ-A1 NoSubs

18 1 3 3 4 -18.4 0.178 -9.000 -9.000 -999. 181. 34.9 0.0230 0.77 1.00 2.91 266.0 10.1 266.4 2.0
0 0.00 56. 986. 10 ADJ-A1 NoSubs

18 1 3 3 5 -28.4 0.276 -9.000 -9.000 -999. 349. 84.0 0.0210 0.77 1.00 4.49 325.0 10.1 268.1 2.0
0 0.00 64. 986. 10 ADJ-A1 NoSubs

18 1 3 3 6 -41.9 0.409 -9.000 -9.000 -999. 627. 183.8 0.0160 0.77 1.00 6.82 344.0 10.1 268.8 2.0
0 0.00 62. 985. 10 ADJ-A1 NoSubs

18 1 3 3 7 -33.6 0.327 -9.000 -9.000 -999. 452. 117.3 0.0160 0.77 1.00 5.50 341.0 10.1 268.1 2.0
0 0.00 64. 987. 10 ADJ-A1 NoSubs

18 1 3 3 8 -30.4 0.295 -9.000 -9.000 -999. 385. 95.8 0.0160 0.77 1.00 4.99 335.0 10.1 268.1 2.0
0 0.00 71. 987. 10 ADJ-A1 NoSubs

18 1 3 3 9 -14.3 0.375 -9.000 -9.000 -999. 551. 325.5 0.0160 0.77 0.47 6.16 330.0 10.1 267.5 2.0
0 0.00 68. 987. 8 ADJ-A1 NoSubs

18 1 3 3 10 29.5 0.473 0.483 0.019 135. 780. -316.1 0.0160 0.77 0.30 7.49 335.0 10.1 267.0 2.0
0 0.00 62. 989. 3 ADJ-A1 NoSubs

18 1 3 3 11 57.0 0.495 0.945 0.021 522. 836. -188.2 0.0160 0.77 0.24 7.77 343.0 10.1 267.5 2.0 0 0.00 57. 989. 0 ADJ-A1 NoSubs

18 1 3 3 12 82.1 0.448 1.324 0.022 999. 722. -96.5 0.0160 0.77 0.22 6.89 339.0 10.1 268.8 2.0 0 0.00 47. 989. 3 ADJ-A1 NoSubs

18 1 3 3 13 87.7 0.407 1.376 0.022 1049. 625. -67.9 0.0210 0.77 0.22 5.90 328.0 10.1 268.8 2.0 0 0.00 50. 989. 3 ADJ-A1 NoSubs

18 1 3 3 14 78.8 0.411 1.329 0.021 1052. 632. -77.6 0.0210 0.77 0.23 5.99 317.0 10.1 268.8 2.0 0 0.00 45. 989. 3 ADJ-A1 NoSubs

18 1 3 3 15 55.8 0.385 1.186 0.021 1053. 574. -90.2 0.0210 0.77 0.25 5.65 320.0 10.1 268.8 2.0 0 0.00 45. 988. 3 ADJ-A1 NoSubs

18 1 3 3 16 20.8 0.349 0.853 0.021 1054. 497. -181.3 0.0210 0.77 0.33 5.24 329.0 10.1 268.1 2.0 0 0.00 47. 989. 3 ADJ-A1 NoSubs

18 1 3 3 17 -19.2 0.275 -9.000 -9.000 -999. 350. 96.0 0.0210 0.77 0.53 4.44 326.0 10.1 265.9 2.0 0 0.00 56. 989. 5 ADJ-A1 NoSubs

18 1 3 3 18 -26.3 0.251 -9.000 -9.000 -999. 303. 69.5 0.0210 0.77 1.00 4.10 320.0 10.1 264.2 2.0 0 0.00 61. 988. 5 ADJ-A1 NoSubs

18 1 3 3 19 -25.9 0.246 -9.000 -9.000 -999. 293. 66.7 0.0210 0.77 1.00 4.02 327.0 10.1 263.1 2.0 0 0.00 67. 990. 3 ADJ-A1 NoSubs

18 1 3 3 20 -22.1 0.209 -9.000 -9.000 -999. 230. 48.1 0.0210 0.77 1.00 3.44 323.0 10.1 262.0 2.0 0 0.00 69. 990. 3 ADJ-A1 NoSubs

18 1 3 3 21 -20.6 0.195 -9.000 -9.000 -999. 206. 41.6 0.0160 0.77 1.00 3.35 333.0 10.1 261.4 2.0 0 0.00 73. 989. 0 ADJ-A1 NoSubs

18 1 3 3 22 -18.7 0.176 -9.000 -9.000 -999. 177. 34.1 0.0160 0.77 1.00 3.05 339.0 10.1 260.9 2.0 0 0.00 76. 990. 0 ADJ-A1 NoSubs

18 1 3 3 23 -16.0 0.161 -9.000 -9.000 -999. 156. 28.6 0.0160 0.77 1.00 2.81 338.0 10.1 260.4 2.0 0 0.00 79. 991. 0 ADJ-A1 NoSubs

18 1 3 3 24 -16.3 0.162 -9.000 -9.000 -999. 157. 28.9 0.0140 0.77 1.00 2.88 12.0 10.1 259.9 2.0 0 0.00 79. 990. 0 ADJ-A1 NoSubs

18 1 4 4 1 -9.8 0.125 -9.000 -9.000 -999. 106. 17.6 0.0160 0.77 1.00 2.22 359.0 10.1 260.4 2.0 0 0.00 76. 991. 0 ADJ-A1 NoSubs

18 1 4 4 2 -15.7 0.159 -9.000 -9.000 -999. 153. 28.0 0.0160 0.77 1.00 2.78 348.0 10.1 259.9 2.0 0 0.00 75. 991. 3 ADJ-A1 NoSubs

18 1 4 4 3 -17.9 0.170 -9.000 -9.000 -999. 168. 31.8 0.0140 0.77 1.00 3.01 6.0 10.1 258.1 2.0 0 0.00 79. 990. 0 ADJ-A1 NoSubs

18 1 4 4 4 -24.4 0.226 -9.000 -9.000 -999. 258. 56.3 0.0140 0.77 1.00 3.95 20.0 10.1 257.5 2.0 0 0.00 80. 991. 0 ADJ-A1 NoSubs

18 1 4 4 5 -17.0 0.165 -9.000 -9.000 -999. 162. 30.0 0.0140 0.77 1.00 2.93 25.0 10.1 257.0 2.0 0 0.00 79. 991. 0 ADJ-A1 NoSubs

18 1 4 4 6 -6.8 0.103 -9.000 -9.000 -999. 80. 14.1 0.0140 0.77 1.00 1.89 3.0 10.1 257.5 2.0 0 0.00 83. 990. 0 ADJ-A1 NoSubs

18 1 4 4 7 -10.3 0.127 -9.000 -9.000 -999. 109. 17.7 0.0140 0.77 1.00 2.30 19.0 10.1 256.4 2.0 0 0.00 79. 992. 0 ADJ-A1 NoSubs

18 1 4 4 8 -11.8 0.137 -9.000 -9.000 -999. 122. 20.7 0.0160 0.77 1.00 2.42 57.0 10.1 257.5 2.0 0 0.00 76. 991. 3 ADJ-A1 NoSubs

18 1 4 4 9 -5.5 0.125 -9.000 -9.000 -999. 106. 31.3 0.0160 0.77 0.47 2.15 49.0 10.1 259.2 2.0 0 0.00 69. 991. 3 ADJ-A1 NoSubs

18 1 4 4 10 2.1 0.129 0.135 0.018 41. 111. -88.5 0.0230 0.77 0.30 1.86 108.0 10.1 259.9 2.0 0 0.00 72. 992. 10 ADJ-A1 NoSubs

18 1 4 4 11 51.8 0.113 0.669 0.020 205. 91. -2.4 0.0110 0.77 0.24 1.38 191.0 10.1 262.0 2.0 0 0.00 63. 992. 7 ADJ-A1 NoSubs

18 1 4 4 12 55.3 0.107 0.771 0.020 292. 84. -1.9 0.0230 0.77 0.22 1.08 266.0 10.1 263.8 2.0 0 0.00 55. 991. 8 ADJ-A1 NoSubs

18 1 4 4 13 71.9 0.152 0.893 0.021 350. 142. -4.3 0.0260 0.77 0.22 1.67 229.0 10.1 264.9 2.0 0 0.00 53. 990. 7 ADJ-A1 NoSubs

18 1 4 4 14 65.0 0.143 0.887 0.022 379. 130. -4.0 0.0230 0.77 0.23 1.60 258.0 10.1 266.4 2.0 0 0.00 47. 990. 7 ADJ-A1 NoSubs

18 1 4 4 15 38.2 0.125 0.750 0.021 390. 106. -4.5 0.0160 0.77 0.25 1.54 69.0 10.1 267.0 2.0 0 0.00 47. 988. 8 ADJ-A1 NoSubs

18 1 4 4 16 19.4 0.194 0.602 0.021 395. 205. -33.0 0.0230 0.77 0.33 2.66 118.0 10.1 268.1 2.0 0 0.00 43. 989. 7 ADJ-A1 NoSubs

18 1 4 4 17 -14.4 0.217 -9.000 -9.000 -999. 242. 62.3 0.0310 0.77 0.53 3.30 149.0 10.1 267.5 2.0 0 0.00 45. 988. 7 ADJ-A1 NoSubs

18 1 4 4 18 -23.3 0.224 -9.000 -9.000 -999. 254. 55.2 0.0310 0.77 1.00 3.44 137.0 10.1 265.4 2.0 0 0.00 51. 987. 8 ADJ-A1 NoSubs

18 1 4 4 19 -17.9 0.172 -9.000 -9.000 -999. 172. 32.5 0.0160 0.77 1.00 2.98 86.0 10.1 265.4 2.0 0 0.00 53. 988. 7 ADJ-A1 NoSubs

18 1 4 4 20 -22.5 0.216 -9.000 -9.000 -999. 240. 51.2 0.0230 0.77 1.00 3.49 92.0 10.1 264.9 2.0 0 0.00 55. 988. 5 ADJ-A1 NoSubs

18 1 4 4 21 -27.0 0.258 -9.000 -9.000 -999. 314. 73.1 0.0230 0.77 1.00 4.14 119.0 10.1 263.8 2.0 0 0.00 60. 987. 3 ADJ-A1 NoSubs

18 1 4 4 22 -28.0 0.266 -9.000 -9.000 -999. 330. 78.0 0.0230 0.77 1.00 4.27 119.0 10.1 263.1 2.0 0 0.00 61. 988. 0 ADJ-A1 NoSubs

18 1 4 4 23 -27.6 0.263 -9.000 -9.000 -999. 324. 76.1 0.0230 0.77 1.00 4.22 111.0 10.1 263.1 2.0 0 0.00 61. 988. 0 ADJ-A1 NoSubs

18 1 4 4 24 -32.0 0.305 -9.000 -9.000 -999. 405. 102.5 0.0310 0.77 1.00 4.63 125.0 10.1 263.1 2.0 0 0.00 61. 986. 0 ADJ-A1 NoSubs

18 1 5 5 1 -31.2 0.297 -9.000 -9.000 -999. 389. 97.0 0.0310 0.77 1.00 4.51 131.0 10.1 263.1 2.0 0 0.00 58. 987. 0 ADJ-A1 NoSubs

18 1 5 5 2 -32.5 0.309 -9.000 -9.000 -999. 411. 104.8 0.0310 0.77 1.00 4.68 124.0 10.1 262.5 2.0 0 0.00 61. 987. 0 ADJ-A1 NoSubs

18 1 5 5 3 -26.5 0.252 -9.000 -9.000 -999. 305. 69.9 0.0230 0.77 1.00 4.05 116.0 10.1 262.5 2.0 0 0.00 61. 986. 0 ADJ-A1 NoSubs

18 1 5 5 4 -19.8 0.188 -9.000 -9.000 -999. 198. 39.0 0.0160 0.77 1.00 3.25 76.0 10.1 262.5 2.0 0 0.00 61. 987. 7 ADJ-A1 NoSubs

18 1 5 5 5 -27.4 0.260 -9.000 -9.000 -999. 318. 74.3 0.0160 0.77 1.00 4.42 63.0 10.1 262.5 2.0 0 0.00 61. 988. 10 ADJ-A1 NoSubs

18 1 5 5 6 -30.1 0.286 -9.000 -9.000 -999. 368. 90.2 0.0160 0.77 1.00 4.85 60.0 10.1 262.5 2.0 0 0.00 64. 988. 8 ADJ-A1 NoSubs

18 1 5 5 7 -28.0 0.265 -9.000 -9.000 -999. 329. 77.5 0.0160 0.77 1.00 4.51 57.0 10.1 262.5 2.0 0 0.00 64. 989. 3 ADJ-A1 NoSubs

18 1 5 5 8 -29.8 0.282 -9.000 -9.000 -999. 359. 87.5 0.0160 0.77 1.00 4.78 55.0 10.1 262.5 2.0 0 0.00 64. 990. 7 ADJ-A1 NoSubs

18 1 5 5 9 -9.5 0.273 -9.000 -9.000 -999. 342. 188.5 0.0160 0.77 0.46 4.53 62.0 10.1 264.9 2.0 0 0.00 53. 990. 5 ADJ-A1 NoSubs

18 1 5 5 10 26.0 0.330 0.429 0.017 107. 455. -122.3 0.0160 0.77 0.30 5.12 71.0 10.1 266.4 2.0 0 0.00 47. 992. 7 ADJ-A1 NoSubs

18 1 5 5 11 51.9 0.337 0.653 0.017 190. 469. -65.1 0.0160 0.77 0.24 5.10 60.0 10.1 268.1 2.0 0 0.00 47. 992. 7 ADJ-A1 NoSubs

18 1 5 5 12 55.6 0.300 0.696 0.017 214. 396. -43.2 0.0160 0.77 0.22 4.46 54.0 10.1 269.2 2.0 0 0.00 44. 991. 8 ADJ-A1 NoSubs

18 1 5 5 13 83.8 0.340 0.835 0.017 246. 476. -41.6 0.0160 0.77 0.22 5.04 44.0 10.1 269.9 2.0 0 0.00 46. 991. 0 ADJ-A1 NoSubs

18 1 5 5 14 65.5 0.320 0.793 0.017 268. 435. -44.3 0.0160 0.77 0.22 4.76 60.0 10.1 270.9 2.0 0 0.00 44. 991. 7 ADJ-A1 NoSubs

18 1 5 5 15 38.7 0.320 0.675 0.017 281. 435. -74.9 0.0160 0.77 0.25 4.88 52.0 10.1 270.4 2.0 0 0.00 44. 990. 8 ADJ-A1 NoSubs

18 1 5 5 16 20.0 0.283 0.546 0.017 286. 362. -100.0 0.0160 0.77 0.32 4.36 55.0 10.1 269.9 2.0 0 0.00 46. 992. 7 ADJ-A1 NoSubs

18 1 5 5 17 -17.8 0.278 -9.000 -9.000 -999. 351. 106.1 0.0160 0.77 0.52 4.66 50.0 10.1 268.8 2.0 0 0.00 50. 992. 7 ADJ-A1 NoSubs

18 1 5 5 18 -26.6 0.256 -9.000 -9.000 -999. 312. 72.3 0.0160 0.77 1.00 4.36 47.0 10.1 267.5 2.0 0 0.00 52. 992. 8 ADJ-A1 NoSubs

18 1 5 5 19 -30.8 0.295 -9.000 -9.000 -999. 385. 95.8 0.0160 0.77 1.00 4.99 54.0 10.1 265.9 2.0 0 0.00 56. 993. 7 ADJ-A1 NoSubs

18 1 5 5 20 -29.2 0.279 -9.000 -9.000 -999. 354. 85.7 0.0160 0.77 1.00 4.73 56.0 10.1 265.4 2.0 0 0.00 61. 994. 5 ADJ-A1 NoSubs

18 1 5 5 21 -33.7 0.321 -9.000 -9.000 -999. 436. 113.3 0.0160 0.77 1.00 5.41 65.0 10.1 264.9 2.0 0 0.00 61. 993. 5 ADJ-A1 NoSubs

18 1 5 5 22 -28.3 0.269 -9.000 -9.000 -999. 335. 79.4 0.0160 0.77 1.00 4.56 74.0 10.1 264.2 2.0 0 0.00 61. 995. 5 ADJ-A1 NoSubs

18 1 5 5 23 -26.1 0.248 -9.000 -9.000 -999. 296. 67.5 0.0160 0.77 1.00 4.22 75.0 10.1 263.8 2.0 0 0.00 60. 995. 10 ADJ-A1 NoSubs

18 1 5 5 24 -27.9 0.264 -9.000 -9.000 -999. 325. 76.5 0.0160 0.77 1.00 4.48 64.0 10.1 263.1 2.0 0 0.00 63. 994. 5 ADJ-A1 NoSubs

18 1 6 6 1 -26.3 0.249 -9.000 -9.000 -999. 298. 68.2 0.0160 0.77 1.00 4.24 72.0 10.1 263.1 2.0 0 0.00 61. 995. 10 ADJ-A1 NoSubs

18 1 6 6 2 -24.7 0.233 -9.000 -9.000 -999. 270. 59.8 0.0160 0.77 1.00 3.98 78.0 10.1 263.1 2.0 0 0.00 61. 995. 10 ADJ-A1 NoSubs

18 1 6 6 3 -23.1 0.218 -9.000 -9.000 -999. 245. 52.5 0.0160 0.77 1.00 3.74 76.0 10.1 262.5 2.0 0 0.00 64. 994. 5 ADJ-A1 NoSubs

18 1 6 6 4 -21.1 0.198 -9.000 -9.000 -999. 212. 43.2 0.0160 0.77 1.00 3.41 76.0 10.1 262.0 2.0 0 0.00 66. 995. 0 ADJ-A1 NoSubs

18 1 6 6 5 -19.7 0.185 -9.000 -9.000 -999. 192. 37.8 0.0160 0.77 1.00 3.20 77.0 10.1 262.0 2.0 0 0.00 63. 995. 0 ADJ-A1 NoSubs

18 1 6 6 6 -27.7 0.261 -9.000 -9.000 -999. 319. 74.7 0.0160 0.77 1.00 4.43 77.0 10.1 261.4 2.0 0 0.00 66. 994. 0 ADJ-A1 NoSubs

18 1 6 6 7 -28.3 0.265 -9.000 -9.000 -999. 328. 77.5 0.0160 0.77 1.00 4.51 88.0 10.1 261.4 2.0 0
0.00 64. 995. 0 ADJ-A1 NoSubs

18 1 6 6 8 -32.9 0.309 -9.000 -9.000 -999. 413. 105.2 0.0230 0.77 1.00 4.93 101.0 10.1 261.4 2.0
0 0.00 64. 995. 5 ADJ-A1 NoSubs

18 1 6 6 9 -12.3 0.355 -9.000 -9.000 -999. 508. 322.5 0.0230 0.77 0.46 5.51 100.0 10.1 262.5 2.0
0 0.00 61. 994. 5 ADJ-A1 NoSubs

18 1 6 6 10 30.0 0.382 0.549 0.019 196. 565. -164.3 0.0230 0.77 0.30 5.62 108.0 10.1 264.2 2.0
0 0.00 56. 995. 3 ADJ-A1 NoSubs

18 1 6 6 11 63.0 0.371 0.787 0.019 274. 543. -72.1 0.0230 0.77 0.24 5.31 116.0 10.1 265.9 2.0
0 0.00 49. 996. 3 ADJ-A1 NoSubs

18 1 6 6 12 83.2 0.387 0.890 0.019 300. 578. -61.8 0.0230 0.77 0.22 5.50 106.0 10.1 267.5 2.0
0 0.00 45. 993. 3 ADJ-A1 NoSubs

18 1 6 6 13 89.1 0.415 0.947 0.019 337. 642. -71.1 0.0230 0.77 0.22 5.94 113.0 10.1 269.2 2.0
0 0.00 44. 992. 3 ADJ-A1 NoSubs

18 1 6 6 14 66.0 0.380 0.879 0.019 363. 563. -73.4 0.0230 0.77 0.22 5.44 118.0 10.1 270.9 2.0
0 0.00 38. 991. 7 ADJ-A1 NoSubs

18 1 6 6 15 57.1 0.379 0.853 0.019 384. 559. -83.9 0.0310 0.77 0.25 5.17 129.0 10.1 272.0 2.0
0 0.00 37. 989. 5 ADJ-A1 NoSubs

18 1 6 6 16 20.7 0.406 0.612 0.020 391. 621. -285.5 0.0310 0.77 0.32 5.75 125.0 10.1 271.4 2.0
0 0.00 41. 989. 7 ADJ-A1 NoSubs

18 1 6 6 17 -33.8 0.391 -9.000 -9.000 -999. 588. 168.3 0.0310 0.77 0.52 5.85 126.0 10.1 270.9 2.0
0 0.00 42. 988. 10 ADJ-A1 NoSubs

18 1 6 6 18 -34.7 0.341 -9.000 -9.000 -999. 479. 127.6 0.0310 0.77 1.00 5.14 127.0 10.1 270.9 2.0
0 0.00 44. 986. 10 ADJ-A1 NoSubs

18 1 6 6 19 -31.1 0.304 -9.000 -9.000 -999. 403. 101.7 0.0310 0.77 1.00 4.61 121.0 10.1 270.4 2.0
0 0.00 46. 987. 10 ADJ-A1 NoSubs

18 1 6 6 20 -31.5 0.309 -9.000 -9.000 -999. 412. 104.9 0.0310 0.77 1.00 4.68 123.0 10.1 270.4 2.0
0 0.00 46. 986. 10 ADJ-A1 NoSubs

18 1 6 6 21 -35.0 0.344 -9.000 -9.000 -999. 484. 130.2 0.0310 0.77 1.00 5.19 130.0 10.1 270.4 2.0
0 0.00 48. 984. 10 ADJ-A1 NoSubs

18 1 6 6 22 -37.4 0.368 -9.000 -9.000 -999. 535. 148.6 0.0310 0.77 1.00 5.53 136.0 10.1 270.4 2.0
0 0.00 50. 984. 10 ADJ-A1 NoSubs

18 1 6 6 23 -46.4 0.458 -9.000 -9.000 -999. 742. 230.3 0.0180 0.77 1.00 7.46 160.0 10.1 271.4 2.0
0 0.00 48. 983. 10 ADJ-SFC NoSubs

18 1 6 6 24 -38.7 0.384 -9.000 -9.000 -999. 574. 161.9 0.0180 0.77 1.00 6.30 162.0 10.1 272.0 2.0
0 0.00 48. 982. 0 ADJ-A1 NoSubs

18 1 7 7 1 -36.1 0.358 -9.000 -9.000 -999. 515. 141.2 0.0180 0.77 1.00 5.90 164.0 10.1 272.5 2.0
0 0.00 51. 982. 10 ADJ-A1 NoSubs

18 1 7 7 2 -40.6 0.405 -9.000 -9.000 -999. 617. 180.1 0.0180 0.77 1.00 6.63 170.0 10.1 273.8 2.0
0 0.00 49. 980. 10 ADJ-A1 NoSubs

18 1 7 7 3 -41.5 0.415 -9.000 -9.000 -999. 641. 189.3 0.0180 0.77 1.00 6.79 172.0 10.1 273.8 2.0
0 0.00 51. 979. 10 ADJ-A1 NoSubs

18 1 7 7 4 -37.6 0.376 -9.000 -9.000 -999. 555. 155.6 0.0180 0.77 1.00 6.18 169.0 10.1 274.2 2.0
0 0.00 53. 979. 10 ADJ-A1 NoSubs

18 1 7 7 5 -38.1 0.382 -9.000 -9.000 -999. 568. 160.9 0.0180 0.77 1.00 6.28 171.0 10.1 274.9 2.0
0 0.00 53. 979. 10 ADJ-A1 NoSubs

18 1 7 7 6 -36.8 0.370 -9.000 -9.000 -999. 541. 150.9 0.0180 0.77 1.00 6.09 171.0 10.1 275.4 2.0
0 0.00 51. 977. 10 ADJ-A1 NoSubs

18 1 7 7 7 -38.6 0.389 -9.000 -9.000 -999. 582. 166.3 0.0180 0.77 1.00 6.38 173.0 10.1 275.4 2.0
0 0.00 51. 978. 10 ADJ-A1 NoSubs

18 1 7 7 8 -36.9 0.372 -9.000 -9.000 -999. 544. 152.0 0.0180 0.77 1.00 6.11 174.0 10.1 275.9 2.0
0 0.00 51. 978. 7 ADJ-A1 NoSubs

18 1 7 7 9 -25.4 0.351 -9.000 -9.000 -999. 500. 148.5 0.0180 0.77 0.46 5.75 172.0 10.1 274.2 2.0
11 1.00 75. 977. 10 ADJ-A1 NoSubs

18 1 7 7 10 2.4 0.331 0.174 0.018 78. 457. -1340.9 0.0180 0.77 0.30 5.21 166.0 10.1 274.2 2.0
11 2.30 85. 978. 10 ADJ-A1 NoSubs

18 1 7 7 11 10.7 0.319 0.384 0.018 184. 432. -263.0 0.0180 0.77 0.24 4.94 160.0 10.1 274.2 2.0
11 0.80 88. 978. 10 ADJ-A1 NoSubs

18 1 7 7 12 15.9 0.326 0.501 0.018 274. 447. -189.3 0.0180 0.77 0.22 5.02 161.0 10.1 274.9 2.0
0 0.00 84. 976. 10 ADJ-A1 NoSubs

18 1 7 7 13 17.5 0.295 0.565 0.019 360. 385. -127.5 0.0180 0.77 0.22 4.49 169.0 10.1 274.9 2.0
0 0.00 88. 976. 10 ADJ-A1 NoSubs

18 1 7 7 14 15.3 0.244 0.547 0.019 370. 290. -82.4 0.0180 0.77 0.22 3.66 179.0 10.1 274.9 2.0
11 0.50 95. 975. 10 ADJ-A1 NoSubs

18 1 7 7 15 9.6 0.207 0.470 0.019 377. 226. -80.2 0.0180 0.77 0.25 3.10 177.0 10.1 274.9 2.0
11 0.20 95. 974. 10 ADJ-A1 NoSubs

18 1 7 7 16 0.7 0.148 0.200 0.019 377. 137. -383.1 0.0110 0.77 0.32 2.49 187.0 10.1 274.9 2.0
0 0.00 100. 975. 10 ADJ-A1 NoSubs

18 1 7 7 17 -11.3 0.143 -9.000 -9.000 -999. 130. 22.7 0.0110 0.77 0.51 2.64 180.0 10.1 275.4 2.0
0 0.00 96. 975. 10 ADJ-A1 NoSubs

18 1 7 7 18 -13.5 0.149 -9.000 -9.000 -999. 139. 24.6 0.0110 0.77 1.00 2.76 181.0 10.1 274.9 2.0
0 0.00 100. 975. 10 ADJ-A1 NoSubs

18 1 7 7 19 -11.6 0.138 -9.000 -9.000 -999. 123. 20.9 0.0110 0.77 1.00 2.56 189.0 10.1 274.2 2.0
0 0.00 96. 976. 10 ADJ-A1 NoSubs

18 1 7 7 20 -13.3 0.153 -9.000 -9.000 -999. 143. 25.7 0.0260 0.77 1.00 2.47 214.0 10.1 274.9 2.0
0 0.00 95. 977. 10 ADJ-A1 NoSubs

18 1 7 7 21 -17.0 0.173 -9.000 -9.000 -999. 173. 33.1 0.0260 0.77 1.00 2.78 229.0 10.1 274.9 2.0
0 0.00 100. 976. 10 ADJ-A1 NoSubs

18 1 7 7 22 -14.9 0.161 -9.000 -9.000 -999. 155. 28.4 0.0230 0.77 1.00 2.64 267.0 10.1 274.2 2.0
0 0.00 100. 978. 10 ADJ-A1 NoSubs

18 1 7 7 23 -18.4 0.183 -9.000 -9.000 -999. 188. 36.9 0.0210 0.77 1.00 3.03 306.0 10.1 273.1 2.0
0 0.00 100. 978. 5 ADJ-A1 NoSubs

18 1 7 7 24 -22.3 0.222 -9.000 -9.000 -999. 251. 54.3 0.0210 0.77 1.00 3.64 319.0 10.1 272.0 2.0
0 0.00 92. 978. 0 ADJ-A1 NoSubs

18 1 8 8 1 -25.1 0.250 -9.000 -9.000 -999. 299. 68.5 0.0210 0.77 1.00 4.07 322.0 10.1 272.0 2.0
0 0.00 88. 979. 0 ADJ-A1 NoSubs

18 1 8 8 2 -27.4 0.272 -9.000 -9.000 -999. 340. 81.4 0.0210 0.77 1.00 4.42 316.0 10.1 272.0 2.0
0 0.00 88. 980. 0 ADJ-A1 NoSubs

18 1 8 8 3 -26.2 0.260 -9.000 -9.000 -999. 319. 74.6 0.0210 0.77 1.00 4.24 320.0 10.1 272.0 2.0
0 0.00 88. 980. 0 ADJ-A1 NoSubs

18 1 8 8 4 -21.7 0.214 -9.000 -9.000 -999. 239. 50.6 0.0210 0.77 1.00 3.52 316.0 10.1 270.9 2.0
0 0.00 95. 981. 0 ADJ-A1 NoSubs

18 1 8 8 5 -20.2 0.198 -9.000 -9.000 -999. 212. 43.3 0.0210 0.77 1.00 3.27 319.0 10.1 270.4 2.0
0 0.00 96. 982. 0 ADJ-A1 NoSubs

18 1 8 8 6 -19.2 0.190 -9.000 -9.000 -999. 198. 39.5 0.0210 0.77 1.00 3.13 317.0 10.1 270.4 2.0
0 0.00 96. 981. 0 ADJ-A1 NoSubs

18 1 8 8 7 -20.6 0.202 -9.000 -9.000 -999. 217. 44.7 0.0210 0.77 1.00 3.32 302.0 10.1 269.9 2.0
0 0.00 95. 983. 0 ADJ-A1 NoSubs

18 1 8 8 8 -18.5 0.181 -9.000 -9.000 -999. 185. 36.1 0.0210 0.77 1.00 3.00 300.0 10.1 269.9 2.0
0 0.00 95. 984. 0 ADJ-A1 NoSubs

18 1 8 8 9 -12.2 0.223 -9.000 -9.000 -999. 253. 79.9 0.0210 0.77 0.46 3.61 310.0 10.1 271.4 2.0
0 0.00 96. 984. 0 ADJ-A1 NoSubs

18 1 8 8 10 25.2 0.218 -9.000 -9.000 -999. 243. -35.9 0.0210 0.77 0.30 3.05 312.0 10.1 273.8 2.0
0 0.00 91. 985. 0 ADJ-A1 NoSubs

18 1 8 8 11 64.2 0.143 -9.000 -9.000 -999. 132. -4.0 0.0210 0.77 0.24 1.64 311.0 10.1 275.9 2.0
0 0.00 88. 984. 3 ADJ-A1 NoSubs

18 1 8 8 12 84.8 0.131 -9.000 -9.000 -999. 114. -2.3 0.0260 0.77 0.22 1.33 236.0 10.1 277.5 2.0
0 0.00 82. 983. 3 ADJ-A1 NoSubs

18 1 8 8 13 91.4 0.145 -9.000 -9.000 -999. 133. -2.9 0.0260 0.77 0.22 1.52 225.0 10.1 280.4 2.0
0 0.00 65. 983. 3 ADJ-A1 NoSubs

18 1 8 8 14 80.9 0.172 -9.000 -9.000 -999. 172. -5.5 0.0260 0.77 0.22 1.96 233.0 10.1 281.4 2.0
0 0.00 53. 983. 5 ADJ-A1 NoSubs

18 1 8 8 15 59.8 0.163 -9.000 -9.000 -999. 158. -6.3 0.0260 0.77 0.25 1.88 225.0 10.1 282.0 2.0
0 0.00 45. 982. 5 ADJ-A1 NoSubs

18 1 8 8 16 27.0 0.166 -9.000 -9.000 -999. 163. -15.0 0.0260 0.77 0.32 2.10 225.0 10.1 282.0 2.0
0 0.00 53. 983. 5 ADJ-A1 NoSubs

18 1 8 8 17 -8.3 0.156 -9.000 -9.000 -999. 148. 40.5 0.0110 0.77 0.51 2.83 204.0 10.1 280.4 2.0
0 0.00 53. 983. 5 ADJ-A1 NoSubs

18 1 8 8 18 -16.6 0.166 -9.000 -9.000 -999. 163. 30.4 0.0110 0.77 1.00 3.05 183.0 10.1 274.9 2.0
0 0.00 75. 982. 5 ADJ-A1 NoSubs

18 1 8 8 19 -19.0 0.190 -9.000 -9.000 -999. 199. 39.7 0.0110 0.77 1.00 3.46 180.0 10.1 275.4 2.0
0 0.00 72. 983. 5 ADJ-A1 NoSubs

18 1 8 8 20 -22.6 0.225 -9.000 -9.000 -999. 257. 55.8 0.0180 0.77 1.00 3.78 173.0 10.1 273.8 2.0
0 0.00 77. 983. 5 ADJ-A1 NoSubs

18 1 8 8 21 -23.4 0.233 -9.000 -9.000 -999. 269. 59.6 0.0180 0.77 1.00 3.90 177.0 10.1 273.1 2.0
0 0.00 81. 982. 5 ADJ-A1 NoSubs

18 1 8 8 22 -23.0 0.228 -9.000 -9.000 -999. 262. 57.4 0.0180 0.77 1.00 3.83 164.0 10.1 273.1 2.0
0 0.00 85. 984. 3 ADJ-A1 NoSubs

18 1 8 8 23 -24.8 0.245 -9.000 -9.000 -999. 291. 66.1 0.0180 0.77 1.00 4.10 173.0 10.1 272.5 2.0
0 0.00 88. 984. 5 ADJ-A1 NoSubs

18 1 8 8 24 -27.8 0.276 -9.000 -9.000 -999. 348. 83.7 0.0180 0.77 1.00 4.59 174.0 10.1 272.5 2.0
0 0.00 88. 982. 0 ADJ-A1 NoSubs

18 1 9 9 1 -29.9 0.296 -9.000 -9.000 -999. 387. 96.7 0.0180 0.77 1.00 4.92 175.0 10.1 273.1 2.0
0 0.00 88. 984. 0 ADJ-A1 NoSubs

18 1 9 9 2 -27.9 0.277 -9.000 -9.000 -999. 350. 84.4 0.0180 0.77 1.00 4.61 173.0 10.1 273.1 2.0
0 0.00 85. 983. 3 ADJ-A1 NoSubs

18 1 9 9 3 -28.3 0.281 -9.000 -9.000 -999. 358. 87.1 0.0180 0.77 1.00 4.68 173.0 10.1 273.1 2.0
0 0.00 88. 982. 5 ADJ-A1 NoSubs

18 1 9 9 4 -23.9 0.236 -9.000 -9.000 -999. 276. 61.2 0.0180 0.77 1.00 3.95 172.0 10.1 271.4 2.0
0 0.00 92. 983. 5 ADJ-A1 NoSubs

18 1 9 9 5 -27.1 0.271 -9.000 -9.000 -999. 338. 80.7 0.0180 0.77 1.00 4.51 160.0 10.1 274.2 2.0
0 0.00 88. 982. 7 ADJ-A1 NoSubs

18 1 9 9 6 -29.9 0.298 -9.000 -9.000 -999. 391. 97.9 0.0180 0.77 1.00 4.95 160.0 10.1 274.2 2.0
0 0.00 92. 982. 8 ADJ-A1 NoSubs

18 1 9 9 7 -31.0 0.309 -9.000 -9.000 -999. 412. 105.1 0.0180 0.77 1.00 5.12 160.0 10.1 274.2 2.0
0 0.00 92. 982. 10 ADJ-A1 NoSubs

18 1 9 9 8 -37.4 0.374 -9.000 -9.000 -999. 548. 153.8 0.0310 0.77 1.00 5.62 146.0 10.1 274.2 2.0
0 0.00 92. 982. 10 ADJ-A1 NoSubs

18 1 9 9 9 -9.9 0.304 -9.000 -9.000 -999. 404. 246.5 0.0180 0.77 0.46 4.92 151.0 10.1 274.9 2.0
0 0.00 88. 981. 8 ADJ-A1 NoSubs

18 1 9 9 10 27.3 0.345 0.419 0.007 94. 486. -131.8 0.0180 0.77 0.30 5.26 158.0 10.1 275.9 2.0
0 0.00 85. 982. 7 ADJ-A1 NoSubs

18 1 9 9 11 11.3 0.325 0.334 0.008 115. 445. -266.0 0.0180 0.77 0.24 5.04 158.0 10.1 277.5 2.0
0 0.00 73. 982. 10 ADJ-A1 NoSubs

18 1 9 9 12 16.6 0.345 0.407 0.007 141. 487. -216.6 0.0180 0.77 0.22 5.33 166.0 10.1 278.1 2.0
0 0.00 67. 980. 10 ADJ-A1 NoSubs

18 1 9 9 13 18.4 0.339 0.443 0.007 165. 473. -184.8 0.0180 0.77 0.22 5.21 156.0 10.1 279.2 2.0
0 0.00 62. 980. 10 ADJ-A1 NoSubs

18 1 9 9 14 16.2 0.375 0.441 0.007 184. 551. -283.2 0.0180 0.77 0.22 5.82 155.0 10.1 279.2 2.0
0 0.00 59. 978. 10 ADJ-A1 NoSubs

18 1 9 9 15 10.5 0.415 0.386 0.006 190. 642. -591.3 0.0310 0.77 0.25 5.94 148.0 10.1 279.2 2.0
0 0.00 64. 977. 10 ADJ-A1 NoSubs

18 1 9 9 16 23.3 0.454 0.511 0.007 200. 734. -350.3 0.0310 0.77 0.31 6.45 148.0 10.1 278.8 2.0
0 0.00 70. 977. 7 ADJ-A1 NoSubs

18 1 9 9 17 -23.8 0.481 -9.000 -9.000 -999. 799. 405.8 0.0310 0.77 0.50 7.06 146.0 10.1 278.1 2.0
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18 1 9 9 18 -42.9 0.434 -9.000 -9.000 -999. 688. 207.0 0.0310 0.77 1.00 6.48 141.0 10.1 275.9 2.0
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18 1 9 9 19 -40.8 0.411 -9.000 -9.000 -999. 634. 186.2 0.0310 0.77 1.00 6.16 137.0 10.1 275.4 2.0
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18 1 9 9 20 -41.8 0.422 -9.000 -9.000 -999. 658. 195.9 0.0310 0.77 1.00 6.31 145.0 10.1 275.9 2.0
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18 1 9 9 21 -47.1 0.477 -9.000 -9.000 -999. 790. 250.3 0.0180 0.77 1.00 7.76 150.0 10.1 276.4 2.0
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18 1 9 9 22 -41.6 0.421 -9.000 -9.000 -999. 659. 195.3 0.0180 0.77 1.00 6.89 166.0 10.1 276.4 2.0
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18 1 9 9 24 -37.2 0.378 -9.000 -9.000 -999. 558. 157.2 0.0180 0.77 1.00 6.21 171.0 10.1 277.0 2.0
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18 1 10 10 1 -40.3 0.409 -9.000 -9.000 -999. 628. 184.2 0.0180 0.77 1.00 6.70 176.0 10.1 277.0 2.0
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18 1 10 10 2 -41.2 0.419 -9.000 -9.000 -999. 652. 193.5 0.0180 0.77 1.00 6.86 176.0 10.1 277.0 2.0
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18 1 10 10 8 -33.9 0.347 -9.000 -9.000 -999. 490. 132.5 0.0180 0.77 1.00 5.72 174.0 10.1 277.5 2.0
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18 1 10 10 15 12.1 0.508 0.522 0.009 404. 871. -934.2 0.0110 0.77 0.25 8.61 185.0 10.1 285.4 2.0
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18 1 10 10 16 3.2 0.536 0.337 0.008 406. 940. -4093.1 0.0110 0.77 0.31 9.12 185.0 10.1 285.4 2.0
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18 1 11 11 23 -44.7 0.424 -9.000 -9.000 -999. 662. 197.3 0.0160 0.77 1.00 7.06 339.0 10.1 261.4 2.0
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18	1	2	14	10.1	1	232.0	5.05	-7.20	99.00	99.00
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18	1	3	1	10.1	1	227.0	4.85	-7.80	99.00	99.00
18	1	3	2	10.1	1	248.0	4.97	-7.80	99.00	99.00
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18	1	3	5	10.1	1	325.0	4.49	-5.00	99.00	99.00
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18	1	3	12	10.1	1	339.0	6.89	-4.40	99.00	99.00
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18	1	3	16	10.1	1	329.0	5.24	-5.00	99.00	99.00
18	1	3	17	10.1	1	326.0	4.44	-7.20	99.00	99.00
18	1	3	18	10.1	1	320.0	4.10	-8.90	99.00	99.00
18	1	3	19	10.1	1	327.0	4.02	-10.00	99.00	99.00
18	1	3	20	10.1	1	323.0	3.44	-11.10	99.00	99.00
18	1	3	21	10.1	1	333.0	3.35	-11.70	99.00	99.00
18	1	3	22	10.1	1	339.0	3.05	-12.20	99.00	99.00
18	1	3	23	10.1	1	338.0	2.81	-12.80	99.00	99.00
18	1	3	24	10.1	1	12.0	2.88	-13.30	99.00	99.00
18	1	4	1	10.1	1	359.0	2.22	-12.80	99.00	99.00
18	1	4	2	10.1	1	348.0	2.78	-13.30	99.00	99.00
18	1	4	3	10.1	1	6.0	3.01	-15.00	99.00	99.00
18	1	4	4	10.1	1	20.0	3.95	-15.60	99.00	99.00
18	1	4	5	10.1	1	25.0	2.93	-16.10	99.00	99.00
18	1	4	6	10.1	1	3.0	1.89	-15.60	99.00	99.00
18	1	4	7	10.1	1	19.0	2.30	-16.70	99.00	99.00

18	1	4	8	10.1	1	57.0	2.42	-15.60	99.00	99.00
18	1	4	9	10.1	1	49.0	2.15	-13.90	99.00	99.00
18	1	4	10	10.1	1	108.0	1.86	-13.30	99.00	99.00
18	1	4	11	10.1	1	191.0	1.38	-11.10	99.00	99.00
18	1	4	12	10.1	1	266.0	1.08	-9.40	99.00	99.00
18	1	4	13	10.1	1	229.0	1.67	-8.30	99.00	99.00
18	1	4	14	10.1	1	258.0	1.60	-6.70	99.00	99.00
18	1	4	15	10.1	1	69.0	1.54	-6.10	99.00	99.00
18	1	4	16	10.1	1	118.0	2.66	-5.00	99.00	99.00
18	1	4	17	10.1	1	149.0	3.30	-5.60	99.00	99.00
18	1	4	18	10.1	1	137.0	3.44	-7.80	99.00	99.00
18	1	4	19	10.1	1	86.0	2.98	-7.80	99.00	99.00
18	1	4	20	10.1	1	92.0	3.49	-8.30	99.00	99.00
18	1	4	21	10.1	1	119.0	4.14	-9.40	99.00	99.00
18	1	4	22	10.1	1	119.0	4.27	-10.00	99.00	99.00
18	1	4	23	10.1	1	111.0	4.22	-10.00	99.00	99.00
18	1	4	24	10.1	1	125.0	4.63	-10.00	99.00	99.00
18	1	5	1	10.1	1	131.0	4.51	-10.00	99.00	99.00
18	1	5	2	10.1	1	124.0	4.68	-10.60	99.00	99.00
18	1	5	3	10.1	1	116.0	4.05	-10.60	99.00	99.00
18	1	5	4	10.1	1	76.0	3.25	-10.60	99.00	99.00
18	1	5	5	10.1	1	63.0	4.42	-10.60	99.00	99.00
18	1	5	6	10.1	1	60.0	4.85	-10.60	99.00	99.00
18	1	5	7	10.1	1	57.0	4.51	-10.60	99.00	99.00
18	1	5	8	10.1	1	55.0	4.78	-10.60	99.00	99.00
18	1	5	9	10.1	1	62.0	4.53	-8.30	99.00	99.00
18	1	5	10	10.1	1	71.0	5.12	-6.70	99.00	99.00
18	1	5	11	10.1	1	60.0	5.10	-5.00	99.00	99.00
18	1	5	12	10.1	1	54.0	4.46	-3.90	99.00	99.00
18	1	5	13	10.1	1	44.0	5.04	-3.30	99.00	99.00
18	1	5	14	10.1	1	60.0	4.76	-2.20	99.00	99.00
18	1	5	15	10.1	1	52.0	4.88	-2.80	99.00	99.00
18	1	5	16	10.1	1	55.0	4.36	-3.30	99.00	99.00
18	1	5	17	10.1	1	50.0	4.66	-4.40	99.00	99.00
18	1	5	18	10.1	1	47.0	4.36	-5.60	99.00	99.00
18	1	5	19	10.1	1	54.0	4.99	-7.20	99.00	99.00
18	1	5	20	10.1	1	56.0	4.73	-7.80	99.00	99.00
18	1	5	21	10.1	1	65.0	5.41	-8.30	99.00	99.00
18	1	5	22	10.1	1	74.0	4.56	-8.90	99.00	99.00
18	1	5	23	10.1	1	75.0	4.22	-9.40	99.00	99.00
18	1	5	24	10.1	1	64.0	4.48	-10.00	99.00	99.00
18	1	6	1	10.1	1	72.0	4.24	-10.00	99.00	99.00
18	1	6	2	10.1	1	78.0	3.98	-10.00	99.00	99.00
18	1	6	3	10.1	1	76.0	3.74	-10.60	99.00	99.00
18	1	6	4	10.1	1	76.0	3.41	-11.10	99.00	99.00
18	1	6	5	10.1	1	77.0	3.20	-11.10	99.00	99.00
18	1	6	6	10.1	1	77.0	4.43	-11.70	99.00	99.00
18	1	6	7	10.1	1	88.0	4.51	-11.70	99.00	99.00
18	1	6	8	10.1	1	101.0	4.93	-11.70	99.00	99.00
18	1	6	9	10.1	1	100.0	5.51	-10.60	99.00	99.00
18	1	6	10	10.1	1	108.0	5.62	-8.90	99.00	99.00
18	1	6	11	10.1	1	116.0	5.31	-7.20	99.00	99.00
18	1	6	12	10.1	1	106.0	5.50	-5.60	99.00	99.00
18	1	6	13	10.1	1	113.0	5.94	-3.90	99.00	99.00
18	1	6	14	10.1	1	118.0	5.44	-2.20	99.00	99.00

18	1	6	15	10.1	1	129.0	5.17	-1.10	99.00	99.00
18	1	6	16	10.1	1	125.0	5.75	-1.70	99.00	99.00
18	1	6	17	10.1	1	126.0	5.85	-2.20	99.00	99.00
18	1	6	18	10.1	1	127.0	5.14	-2.20	99.00	99.00
18	1	6	19	10.1	1	121.0	4.61	-2.80	99.00	99.00
18	1	6	20	10.1	1	123.0	4.68	-2.80	99.00	99.00
18	1	6	21	10.1	1	130.0	5.19	-2.80	99.00	99.00
18	1	6	22	10.1	1	136.0	5.53	-2.80	99.00	99.00
18	1	6	23	10.1	1	160.0	7.46	-1.70	99.00	99.00
18	1	6	24	10.1	1	162.0	6.30	-1.10	99.00	99.00
18	1	7	1	10.1	1	164.0	5.90	-0.60	99.00	99.00
18	1	7	2	10.1	1	170.0	6.63	0.60	99.00	99.00
18	1	7	3	10.1	1	172.0	6.79	0.60	99.00	99.00
18	1	7	4	10.1	1	169.0	6.18	1.10	99.00	99.00
18	1	7	5	10.1	1	171.0	6.28	1.70	99.00	99.00
18	1	7	6	10.1	1	171.0	6.09	2.20	99.00	99.00
18	1	7	7	10.1	1	173.0	6.38	2.20	99.00	99.00
18	1	7	8	10.1	1	174.0	6.11	2.80	99.00	99.00
18	1	7	9	10.1	1	172.0	5.75	1.10	99.00	99.00
18	1	7	10	10.1	1	166.0	5.21	1.10	99.00	99.00
18	1	7	11	10.1	1	160.0	4.94	1.10	99.00	99.00
18	1	7	12	10.1	1	161.0	5.02	1.70	99.00	99.00
18	1	7	13	10.1	1	169.0	4.49	1.70	99.00	99.00
18	1	7	14	10.1	1	179.0	3.66	1.70	99.00	99.00
18	1	7	15	10.1	1	177.0	3.10	1.70	99.00	99.00
18	1	7	16	10.1	1	187.0	2.49	1.70	99.00	99.00
18	1	7	17	10.1	1	180.0	2.64	2.20	99.00	99.00
18	1	7	18	10.1	1	181.0	2.76	1.70	99.00	99.00
18	1	7	19	10.1	1	189.0	2.56	1.10	99.00	99.00
18	1	7	20	10.1	1	214.0	2.47	1.70	99.00	99.00
18	1	7	21	10.1	1	229.0	2.78	1.70	99.00	99.00
18	1	7	22	10.1	1	267.0	2.64	1.10	99.00	99.00
18	1	7	23	10.1	1	306.0	3.03	0.00	99.00	99.00
18	1	7	24	10.1	1	319.0	3.64	-1.10	99.00	99.00
18	1	8	1	10.1	1	322.0	4.07	-1.10	99.00	99.00
18	1	8	2	10.1	1	316.0	4.42	-1.10	99.00	99.00
18	1	8	3	10.1	1	320.0	4.24	-1.10	99.00	99.00
18	1	8	4	10.1	1	316.0	3.52	-2.20	99.00	99.00
18	1	8	5	10.1	1	319.0	3.27	-2.80	99.00	99.00
18	1	8	6	10.1	1	317.0	3.13	-2.80	99.00	99.00
18	1	8	7	10.1	1	302.0	3.32	-3.30	99.00	99.00
18	1	8	8	10.1	1	300.0	3.00	-3.30	99.00	99.00
18	1	8	9	10.1	1	310.0	3.61	-1.70	99.00	99.00
18	1	8	10	10.1	1	312.0	3.05	0.60	99.00	99.00
18	1	8	11	10.1	1	311.0	1.64	2.80	99.00	99.00
18	1	8	12	10.1	1	236.0	1.33	4.40	99.00	99.00
18	1	8	13	10.1	1	225.0	1.52	7.20	99.00	99.00
18	1	8	14	10.1	1	233.0	1.96	8.30	99.00	99.00
18	1	8	15	10.1	1	225.0	1.88	8.90	99.00	99.00
18	1	8	16	10.1	1	225.0	2.10	8.90	99.00	99.00
18	1	8	17	10.1	1	204.0	2.83	7.20	99.00	99.00
18	1	8	18	10.1	1	183.0	3.05	1.70	99.00	99.00
18	1	8	19	10.1	1	180.0	3.46	2.20	99.00	99.00
18	1	8	20	10.1	1	173.0	3.78	0.60	99.00	99.00
18	1	8	21	10.1	1	177.0	3.90	0.00	99.00	99.00

18	1	8	22	10.1	1	164.0	3.83	0.00	99.00	99.00
18	1	8	23	10.1	1	173.0	4.10	-0.60	99.00	99.00
18	1	8	24	10.1	1	174.0	4.59	-0.60	99.00	99.00
18	1	9	1	10.1	1	175.0	4.92	0.00	99.00	99.00
18	1	9	2	10.1	1	173.0	4.61	0.00	99.00	99.00
18	1	9	3	10.1	1	173.0	4.68	0.00	99.00	99.00
18	1	9	4	10.1	1	172.0	3.95	-1.70	99.00	99.00
18	1	9	5	10.1	1	160.0	4.51	1.10	99.00	99.00
18	1	9	6	10.1	1	160.0	4.95	1.10	99.00	99.00
18	1	9	7	10.1	1	160.0	5.12	1.10	99.00	99.00
18	1	9	8	10.1	1	146.0	5.62	1.10	99.00	99.00
18	1	9	9	10.1	1	151.0	4.92	1.70	99.00	99.00
18	1	9	10	10.1	1	158.0	5.26	2.80	99.00	99.00
18	1	9	11	10.1	1	158.0	5.04	4.40	99.00	99.00
18	1	9	12	10.1	1	166.0	5.33	5.00	99.00	99.00
18	1	9	13	10.1	1	156.0	5.21	6.10	99.00	99.00
18	1	9	14	10.1	1	155.0	5.82	6.10	99.00	99.00
18	1	9	15	10.1	1	148.0	5.94	6.10	99.00	99.00
18	1	9	16	10.1	1	148.0	6.45	5.60	99.00	99.00
18	1	9	17	10.1	1	146.0	7.06	5.00	99.00	99.00
18	1	9	18	10.1	1	141.0	6.48	2.80	99.00	99.00
18	1	9	19	10.1	1	137.0	6.16	2.20	99.00	99.00
18	1	9	20	10.1	1	145.0	6.31	2.80	99.00	99.00
18	1	9	21	10.1	1	150.0	7.76	3.30	99.00	99.00
18	1	9	22	10.1	1	166.0	6.89	3.30	99.00	99.00
18	1	9	23	10.1	1	172.0	5.26	3.90	99.00	99.00
18	1	9	24	10.1	1	171.0	6.21	3.90	99.00	99.00
18	1	10	1	10.1	1	176.0	6.70	3.90	99.00	99.00
18	1	10	2	10.1	1	176.0	6.86	3.90	99.00	99.00
18	1	10	3	10.1	1	177.0	7.16	3.90	99.00	99.00
18	1	10	4	10.1	1	174.0	6.87	3.30	99.00	99.00
18	1	10	5	10.1	1	175.0	6.14	3.90	99.00	99.00
18	1	10	6	10.1	1	173.0	5.36	3.90	99.00	99.00
18	1	10	7	10.1	1	180.0	5.41	3.90	99.00	99.00
18	1	10	8	10.1	1	174.0	5.72	4.40	99.00	99.00
18	1	10	9	10.1	1	183.0	6.64	5.60	99.00	99.00
18	1	10	10	10.1	1	189.0	7.98	6.70	99.00	99.00
18	1	10	11	10.1	1	189.0	9.36	8.90	99.00	99.00
18	1	10	12	10.1	1	192.0	9.24	9.40	99.00	99.00
18	1	10	13	10.1	1	188.0	9.00	10.60	99.00	99.00
18	1	10	14	10.1	1	188.0	9.12	11.10	99.00	99.00
18	1	10	15	10.1	1	185.0	8.61	12.20	99.00	99.00
18	1	10	16	10.1	1	185.0	9.12	12.20	99.00	99.00
18	1	10	17	10.1	1	184.0	8.35	12.20	99.00	99.00
18	1	10	18	10.1	1	184.0	8.49	12.80	99.00	99.00
18	1	10	19	10.1	1	186.0	10.78	13.30	99.00	99.00
18	1	10	20	10.1	1	190.0	10.60	12.80	99.00	99.00
18	1	10	21	10.1	1	189.0	10.24	11.70	99.00	99.00
18	1	10	22	10.1	1	185.0	10.34	11.70	99.00	99.00
18	1	10	23	10.1	1	196.0	9.73	11.10	99.00	99.00
18	1	10	24	10.1	1	201.0	8.25	10.60	99.00	99.00
18	1	11	1	10.1	1	212.0	9.05	10.00	99.00	99.00
18	1	11	2	10.1	1	258.0	2.81	9.40	99.00	99.00
18	1	11	3	10.1	1	228.0	2.11	8.30	99.00	99.00
18	1	11	4	10.1	1	169.0	2.13	7.20	99.00	99.00

18	1	11	5	10.1	1	151.0	2.50	7.80	99.00	99.00
18	1	11	6	10.1	1	233.0	3.07	5.00	99.00	99.00
18	1	11	7	10.1	1	337.0	8.62	0.00	99.00	99.00
18	1	11	8	10.1	1	337.0	9.17	-1.10	99.00	99.00
18	1	11	9	10.1	1	340.0	9.37	-4.40	99.00	99.00
18	1	11	10	10.1	1	337.0	9.41	-5.60	99.00	99.00
18	1	11	11	10.1	1	339.0	10.00	-7.20	99.00	99.00
18	1	11	12	10.1	1	334.0	8.45	-7.20	99.00	99.00
18	1	11	13	10.1	1	325.0	8.71	-8.90	99.00	99.00
18	1	11	14	10.1	1	328.0	8.73	-8.90	99.00	99.00
18	1	11	15	10.1	1	331.0	8.91	-10.00	99.00	99.00
18	1	11	16	10.1	1	329.0	7.03	-9.40	99.00	99.00
18	1	11	17	10.1	1	328.0	6.96	-10.00	99.00	99.00
18	1	11	18	10.1	1	328.0	6.55	-10.60	99.00	99.00
18	1	11	19	10.1	1	332.0	6.55	-10.00	99.00	99.00
18	1	11	20	10.1	1	334.0	7.77	-10.60	99.00	99.00
18	1	11	21	10.1	1	336.0	6.38	-10.60	99.00	99.00
18	1	11	22	10.1	1	332.0	7.16	-11.10	99.00	99.00
18	1	11	23	10.1	1	339.0	7.06	-11.70	99.00	99.00
18	1	11	24	10.1	1	341.0	6.91	-11.70	99.00	99.00
18	1	12	1	10.1	1	342.0	7.32	-12.20	99.00	99.00
18	1	12	2	10.1	1	344.0	7.72	-12.80	99.00	99.00
18	1	12	3	10.1	1	346.0	7.47	-13.30	99.00	99.00
18	1	12	4	10.1	1	349.0	7.08	-13.90	99.00	99.00
18	1	12	5	10.1	1	353.0	6.30	-14.40	99.00	99.00
18	1	12	6	10.1	1	343.0	5.73	-14.40	99.00	99.00
18	1	12	7	10.1	1	339.0	5.33	-15.00	99.00	99.00
18	1	12	8	10.1	1	338.0	4.99	-15.60	99.00	99.00
18	1	12	9	10.1	1	333.0	6.01	-14.40	99.00	99.00
18	1	12	10	10.1	1	339.0	6.29	-12.80	99.00	99.00
18	1	12	11	10.1	1	351.0	5.67	-11.70	99.00	99.00
18	1	12	12	10.1	1	350.0	4.92	-10.00	99.00	99.00
18	1	12	13	10.1	1	338.0	4.75	-8.90	99.00	99.00
18	1	12	14	10.1	1	340.0	5.48	-8.30	99.00	99.00
18	1	12	15	10.1	1	341.0	6.02	-8.30	99.00	99.00
18	1	12	16	10.1	1	336.0	6.33	-9.40	99.00	99.00
18	1	12	17	10.1	1	348.0	5.67	-10.00	99.00	99.00
18	1	12	18	10.1	1	343.0	5.99	-10.60	99.00	99.00
18	1	12	19	10.1	1	353.0	6.86	-11.10	99.00	99.00
18	1	12	20	10.1	1	353.0	6.21	-11.10	99.00	99.00
18	1	12	21	10.1	1	354.0	5.72	-10.60	99.00	99.00
18	1	12	22	10.1	1	4.0	5.99	-10.60	99.00	99.00
18	1	12	23	10.1	1	7.0	5.97	-10.60	99.00	99.00
18	1	12	24	10.1	1	1.0	5.87	-10.60	99.00	99.00

Figure 4 – Evergy Montrose Remodeled SO_2 Concentrations